

**VIA  
SCADA  
Supplemental**

VISUAL ZONES & VIEWSHEDS

SCENIC QUALITY

VISUAL SENSITIVITY

VISUAL QUALITY OBJECTIVE

VISUAL CONTRAST RATING

REDUCING VISUAL CONTRA



UNITED STATES GOVERNMENT - Bureau of Land Management

# Memorandum

6300

**TO :** District Manager, Craig

**DATE:** August 24, 1976

**FROM :** EIS Team Leader

**SUBJECT:** VRM - Craig District Supplement

Enclosed are four (4) copies of a "Here's How" booklet on the Bureau's new Visual Resource Management (VRM) system which I began work on this spring at the District Office. We were able to complete it at this office during breaks in the typing workload, especially prior to the core team's arrival on August 2.

The supplement incorporates revisions Andy Wenchell made for the State which he originally planned to manualize in a special Colorado supplement. While using the system in working on the Great Divide/Maybell URA and also in the Skull Creek Activity Plan, several improvements were made.

I think this booklet will provide the guidance needed to enable our District to fully implement the system. Please retain one copy in the District Office Library for use by the Little Snake R.A. and District staff. Two more copies should be sent to Kremmling and White River R. A.s. A draft cover memo is also enclosed to be attached to each copy.

In the course of developing the booklet, I received several requests for assistance from those trying to implement the system in other districts. Apparently, difficulties in implementing the system are statewide. Please send the fourth copy to the State Director, 5-931; reproduction of the supplement, or a modification of it may also be helpful to the remainder of the State. A draft memo to accompany this copy is also enclosed.

*Dow Bruns*

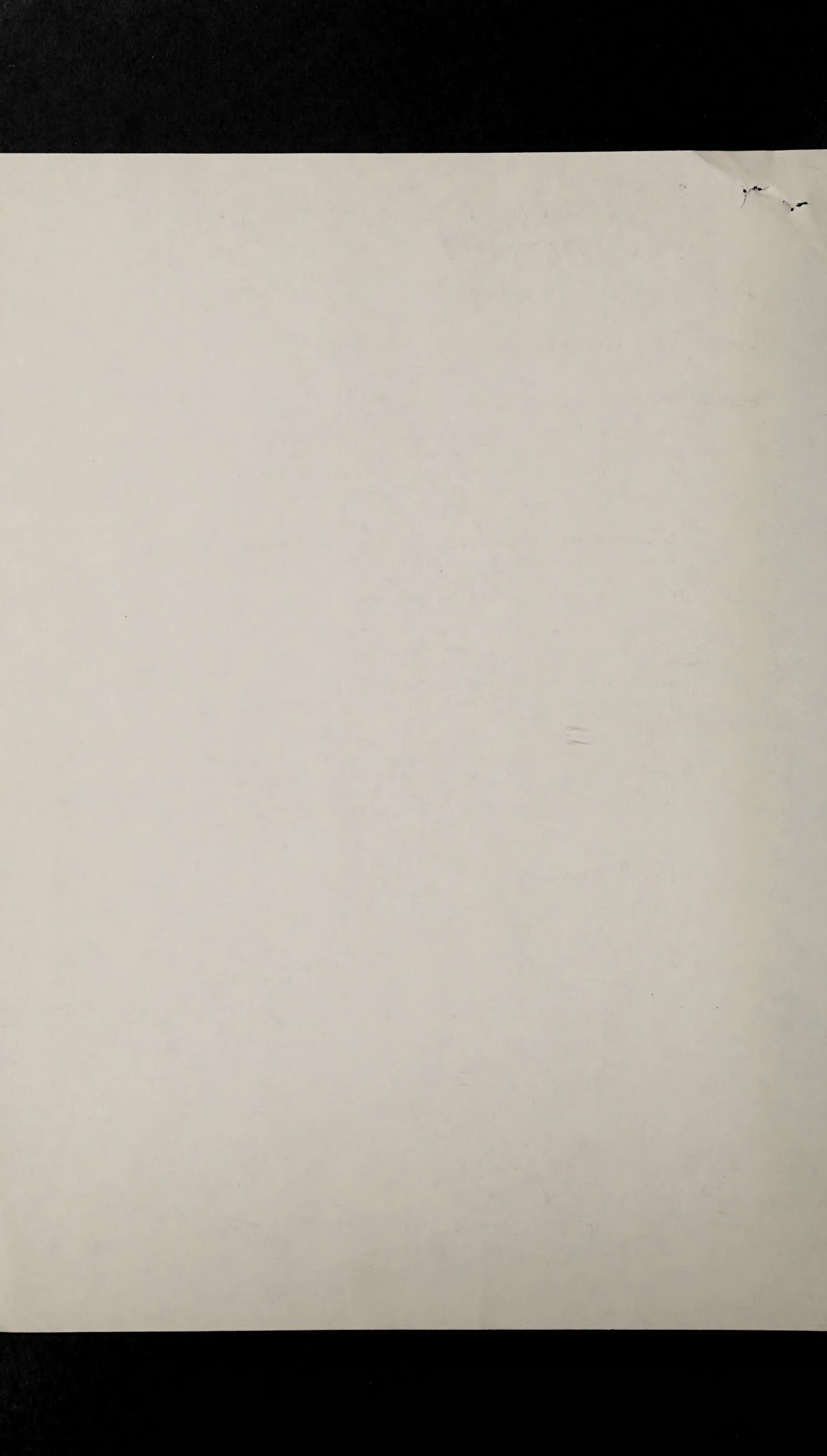
Enclosures

cc:NW Colo. Coal EIS Project Office



*Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan*

5010-108



UNITED STATES GOVERNMENT - Bureau of Land Management

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Gene Miller requested a copy of the booklet and we are sending this copy in response to his request. Please let us know if you have any comments. We have retained the original copy and photos.

cc:N.W.Colo. Coal EIS Project Office



*Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan*

the original and the author's manuscript of the same

are given below.

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UNITED STATES GOVERNMENT - Bureau of Land Management

# Memorandum

6300

**TO :** Area Managers: LSRA, KRA & WRRA; and  
District Chief of Resource

**DATE:** August 24, 1976

**FROM :** District Manager, Craig

**SUBJECT:** VRM - Craig District Supplement

Enclosed are two copies of the recently completed Craig District VRM manual supplement for your library. The manual is in accordance with the 6300 Manual as revised by Andy Wenchell, Landscape Architect, CSO.

Field tested on the Maybell/Great Divide URAs and the Skull Creek Activity Plan, it provides an orderly approach for implementing the VRM system with practical helps on how-to-do-it. A "Concepts" section in the back provides some background material supporting the VRM system to help you use it more effectively.

The color-coded series of overlays and dividers provide a handy outline for the six major sections of the VRM system. All future VRM work prepared in the District will be mapped according to this color code to establish uniformity.

If you have any questions, please contact Don Bruns.

cc:State Director, 5-931



*Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan*



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*John W. Pearson*  
cc: State Director, 5-931



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1. *Therapeutic trial to assess -* *Immunotherapy*

2. *Therapeutic trial to assess -* *Immunotherapy*

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OPTIONAL FORM NO. 10  
MAY 1962 EDITION  
GSA FPMR (41 CFR) 101-11.8

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*Howard W. Pearson*  
cc:N.W.Colo. Coal EIS Project Office



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Don Bruns

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C6  
C73  
1976

## PREFACE

This booklet is a guide for managing the Visual Resource; essentially HOW TO DO IT. Many of the photographs were taken within the Craig District, and the map-overlay section was assembled for an area about ten miles southwest of Craig to enable you to more readily use it and familiarize yourself with it on-the-ground.

Given certain manual changes forthcoming in a special Colorado supplement, as per Andy Wenchell's adaptations (1976), this guide reflects provisions of the new 6300 Manual for Visual Resource Management (VRM). The working section of this booklet consists of six sections covering the six phases of VRM (each color-coded to the VRM outline on page 2). A brief "Concepts" section follows the working section to provide a greater appreciation and understanding of the ideas behind VRM -- to help you "get it together".

. . . plan in full awareness of nature's forces, forms, and features -- the sweep of the sun, the air currents, the peaks and hollows of the earth, rock and soil strata, vegetation, lakes and streams, watersheds and natural drainage ways -- and this awareness should obviously entail planning in harmony with the elements of nature. If we disregard them we will engender countless unnecessary frictions and preclude those experiences of fitness and compatibility that can bring so much pleasure and satisfaction to our lives.

John O. Simonds  
Landscape Architecture



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BASE MAP -- Inside Back Cover



### Why VRM?

During the last several years, the quality of our environment has become increasingly important to a large segment of our population. Since one of the major components of a quality environment is the way it appears, aesthetics is receiving more and more attention from both the public and from land management agencies. Many of the BLM's land management activities involve some alteration of the natural character of the landscape. Because these alterations can change the landscape character, it is imperative that these changes be understood and treated in a manner that reinforces the natural character and quality of the landscape.

It must be recognized that there is a variety of scenic values on national resource lands and there are numerous other resources with management objectives that may not coincide with the protection of the visual resources. These different values and different objectives warrant different levels of protection for the visual resource.

Because it is not practical to provide the same degree of management to the visual resources on all BLM lands, it becomes necessary to have a system to evaluate the visual resources and to determine what degree of protection is desirable and practical and provide a method of controlling our management activities to afford that protection.

BLM's Associate Director, George Turcott, addressed the VRM instructor workshop held in November, 1975, in Denver. He noted that many of NRDC's actions against the Bureau in the recent past have been based, to a great degree, on the Bureau's failure to address visual resources in environmental reporting procedures. Now public pressure requires a "professionalization" of visual resource management. Turcott stated that the Bureau's charter requires optimization of all resource values; he also emphasized that now VRM is another of these resources, deserving equal recognition.

### What VRM does.

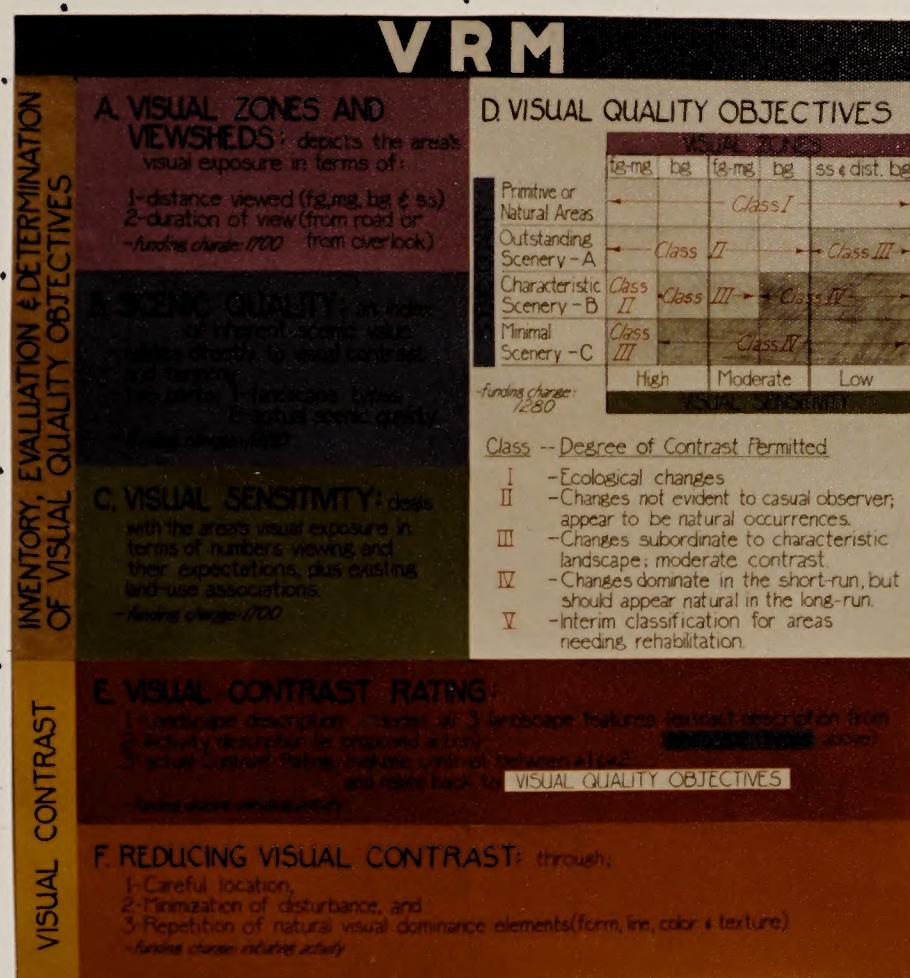
Visual Resource Management focuses on how man visually perceives his environment; eighty-seven percent of man's sensory perception is based on sight. Therefore, the VRM system avoids discussion of the human-interest aspects of the environment which challenge the mine (i.e., largely interpretive, educational and scientific values) recognition of these values is not to be confused with man's sensory perception of his environment.

Initially, VRM provides an inventory system for objectively evaluating the visual aspect of the land we manage to determine management objectives that prescribe allowable limits for landscape alteration.

Secondly, VRM measures the degree to which proposed actions would contrast with the existing landscape character. This measure of contrast is related back to the predetermined objectives; if contrast is too great, the intended action is redesigned until it fits within the allowable contrast limits.



How VRM works:



This chart illustrates the six basic components of the VRM system. The first four steps under Inventory, Evaluation and Determination of Visual Quality Objectives are completed in URA-MFP planning to arrive at a determination of Step 1 MFP recommendations.

- A) Relative visibility of proposed landscape alterations is determined by the distance at which an object is viewed and the duration of the view. This is measured by visual zones and viewsheds.
- B) Scenic quality is essentially a measure of landscape variety; this is both an index of inherent scenic value, and an index of the landscape's ability to absorb landscape modification while still maintaining visual harmony.
- C) An evaluation of people's attitudes, lifestyles and expectations determines whether people will be sensitive to obvious incongruous features in the landscape. The VRM system measures this sensitivity and numbers of viewers as another index of potential for adverse visual impact.
- D) Based on the foregoing considerations, the VRM system prescribes management objectives which set a variety of limits as to how well proposed landscape alterations should "fit" into the characteristic landscape. Limits are most restrictive for landscapes having the greatest scenic quality, visual exposure and visual sensitivity.

Field experience has shown that completion of the first four steps is most readily accomplished in the order shown above; by traveling surfaced and improved public roads to map visual zones, one can get a better impression of both scenic quality and visual sensitivity.



The last two steps of the VRM system deal with project application. They are completed to determine if Step III MFP recommendations, as well as other proposed actions (as addressed in EARs and EISs), would meet VRM management objectives determined in Section D.

- E) Because opposition to visual intrusions stems largely from their noticeability, which is directly related to a lack of harmony and congruity, the Bureau's new VRM system was designed to determine whether or not proposed actions would "fit" into the landscape(s) into which they are to be placed. How well a project will "fit" into the characteristic landscape is determined by contrasting proposed changes in the three landscape features -- landform, vegetation and man-made structures -- with the characteristic landscape.
- F) When necessary to meet visual quality objectives (determined under A-D), a project can be made less noticeable by reducing its contrast with the adjacent landscape. The project will more easily fit into the characteristic landscape if it is properly located, if disturbance is minimized and if it borrows from the form, line, color and texture that is already there.

The need to separate one's self from the bias of personal preferences and value judgements to permit an objective analysis of how the landscape is visually perceived should become apparent. Aesthetic values, of which visual resources is a part, entreat the senses; but they do not challenge the intellect. Given the following guidelines uniform application of the VRM system to visual resource management problems can be expected.



#### WORKING SECTION

To use the remaining portion of this booklet, the reader should unfold the base map at the back. This working section is divided into six parts, each with an accompanying overlay(s) -- the divider for each section is color-coded to the VRM chart on page 2 that shows the interrelationship between these six parts.



## **Part I**

# **INVENTORY, EVALUATION AND DETERMINATION OF VISUAL QUALITY OBJECTIVES**







#### A. VISUAL ZONES AND VIEWSHEDS (URA STEP III)

Part 1 - Visual Zone Delineation: depicts distance from which landscape units are viewed.

a. Define FOREGROUND, MIDDLEGROUND and BACKGROUND ZONES

- FOREGROUND (fg) - up to 1 mile
- MIDDLEGROUND (mg) - fg up to 5-8 miles
- near BACKGROUND (bg) - mg up to 15-20 miles

} normally delineated as a unit, fg-mg; delineate separately only for areas of high sensitivity (see p. 22).

b. The remaining area will be delineated as SELDOM SEEN (ss) including:

- distant background (beyond 15-20 miles) and
- areas not visible from major public roads (i.e., visible only from the air, by horseback, from unimproved or four-wheel-drive roads and trails, etc.)

V  
R  
M A-1

visual  
zones



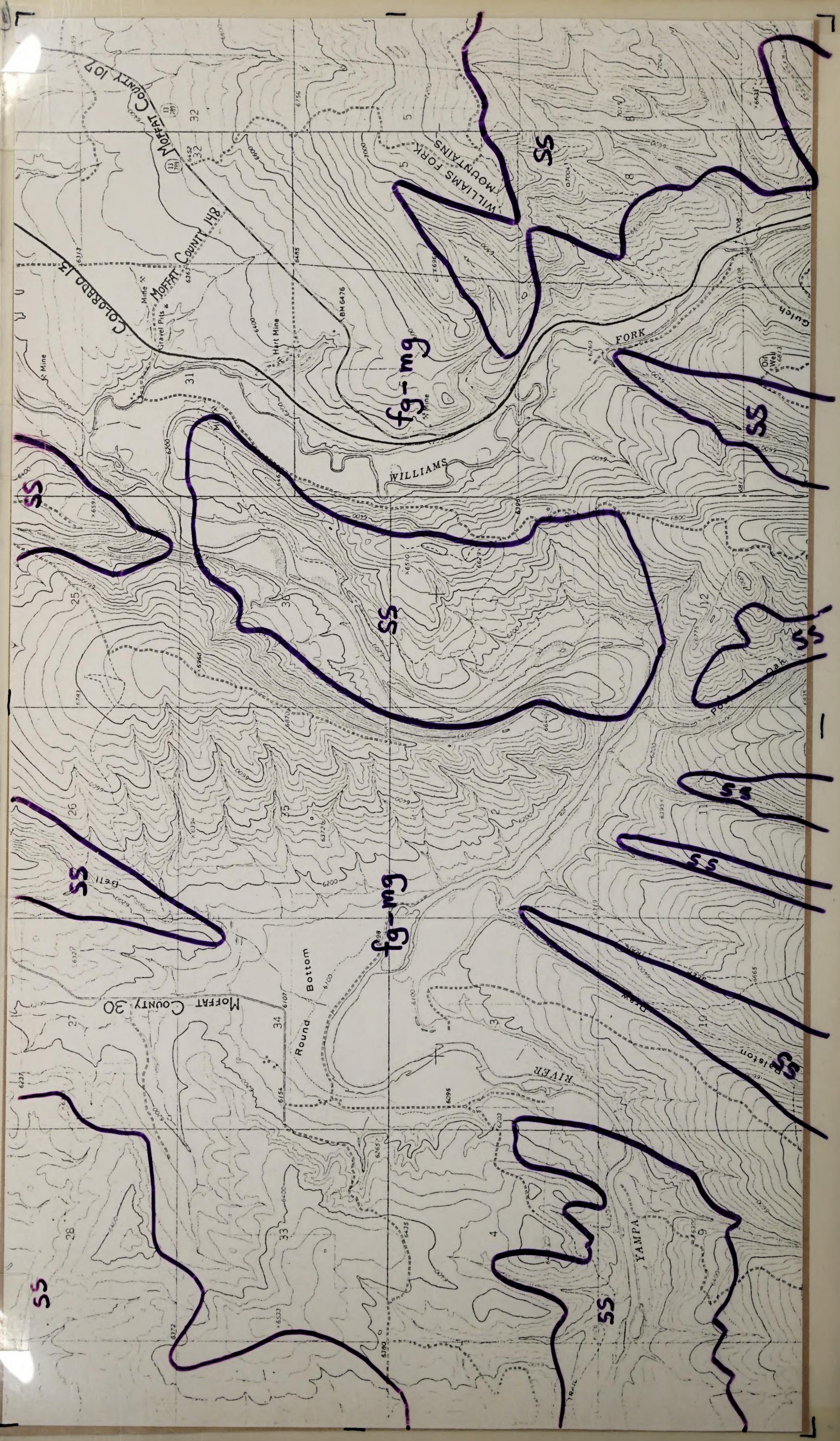
Visual Zones for base map overlay

Visual zones were mapped from Colorado highway 13 and from Moffat County 30, 107, and 148. Mapping symbols are as follows:

fg-mg: FOREGROUND-MIDDLEGROUND  
(these are delineated separately on the viewsheds overlay -- normally completed only for areas of high sensitivity, see page 22)

bg: BACKGROUND

ss: SELDOM SEEN



## Part 2 - Viewsheds/Landscape Visibility Mapping

Landscape visibility mapping suggests areas that are more visible than others. Not only does it show how visibility increases at closer distances, but it also illustrates how visibility increases when landscape units are visible from more road segments, longer road segments, and by motorists traveling in both directions.

Any road traverses a visual corridor that consists of all areas visible from that road. This corridor can be divided into smaller landscapes or viewsheds that are defined by the ridges, peaks and escarpments that surround these smaller landscapes. Though views may overlap from one viewshed to another, motorists naturally pass through successive viewsheds as they cross their respective topographic boundaries.

A single viewshed sequence is that segment of a road contained by any one viewshed. Transitional points between viewshed sequences, or viewshed sequence points, can be mapped to obtain reference points for classifying the landscape visible from each road segment.

Relative to each viewshed sequence, viewsheds may be subdivided into landscape visual units which includes all areas visible from that viewshed sequence; these are determined according to (1) their distance from the viewer, (2) the combinations of viewshed sequences offering the view and (3) the direction of travel along these viewshed sequences. Each landscape visual unit's relative visibility may be mapped accordingly.

This exercise should be completed only for viewsheds having high sensitivity, due to the time involved in mapping. It is not needed to determine Visual Quality Objectives, but it is helpful in determining the extent of areas having high visual sensitivity (see p. 22).

This exercise is also very helpful in determining the relative visibility of the various landscape visual units, especially as relates to project layout, assessment of potential environmental impacts and formulation of subsequent mitigating measures (e.g., in EARs and EISs).

Y  
R  
M      A-2      viewsheds

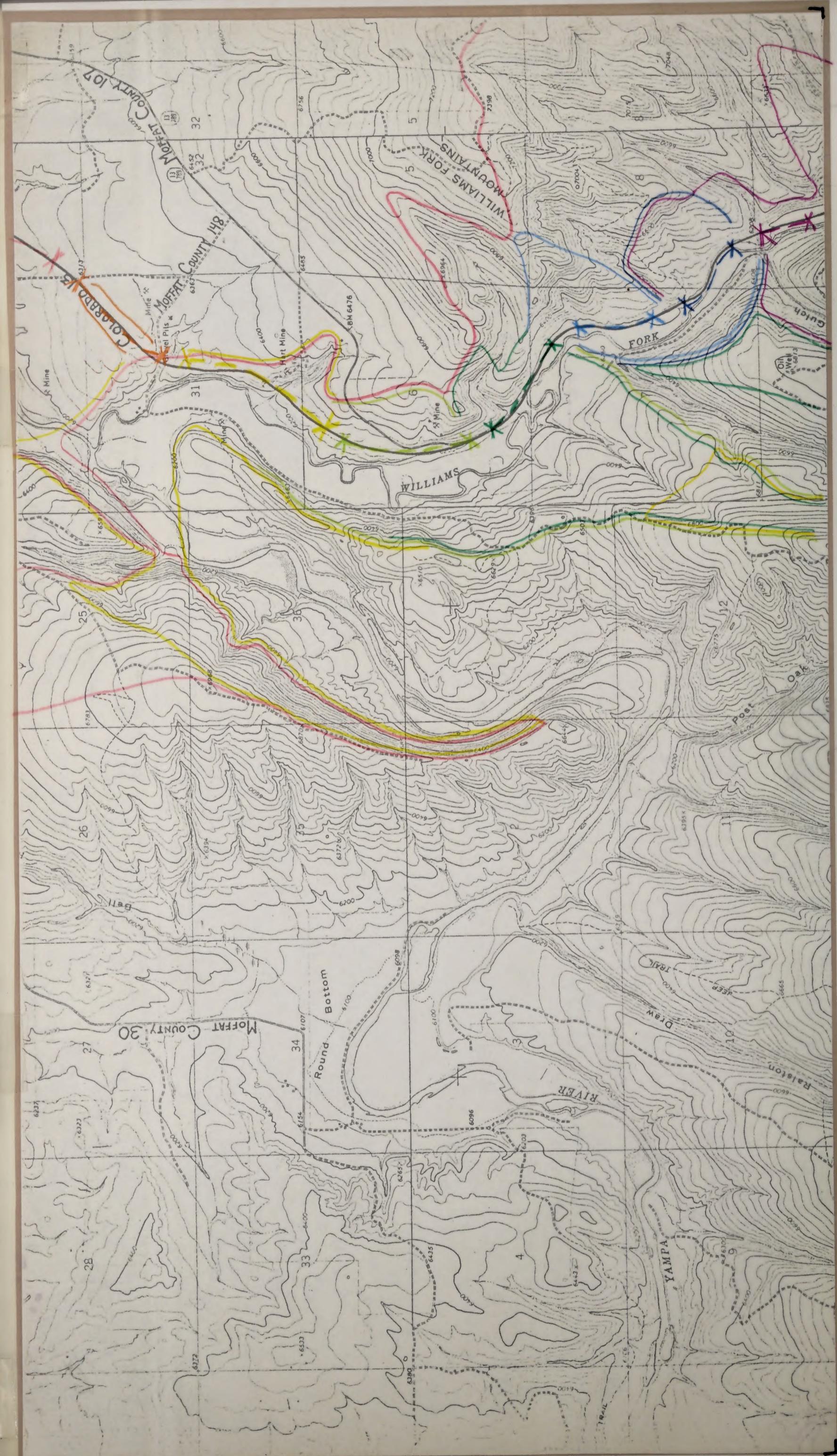


Field Map for Viewsheds/Landscape Visibility Mapping

The attached page of frosted mylar illustrates one technique found to be effective in landscape visibility field mapping. By matching the viewshed sequence (road segment) color with that of a line which delineates the landscape visual unit, it is possible to map these overlapping units on the same page.

The complexity is compounded when more than one road provides visual access to an area. In this case it is helpful to use more than one overlay.

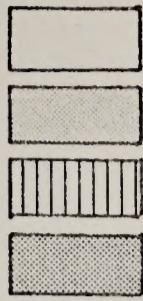
The attached overlay illustrates landscape visibility mapping from Colorado 13; a similar overlay was prepared along Moffat County 30 to arrive at the finished landscape visibility map (see p. 11).



Viewsheds--

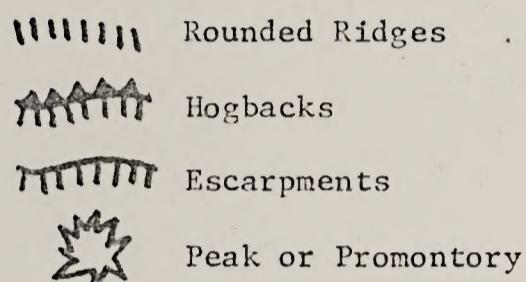
Legend for landscape visibility mapping on base map overlay

OVERALL  
VISIBILITY  
CLASSIFICATION



- Foreground Landscapes
- Middleground Landscapes
- Background Landscapes
- Lands Not Visible (i.e. seldom seen)

VISUAL BOUNDARIES  
and  
DOMINANT  
FEATURES



— — — Foreground Landscape Visual Unit Boundaries

ROADS

(13) U.S. or State Highways

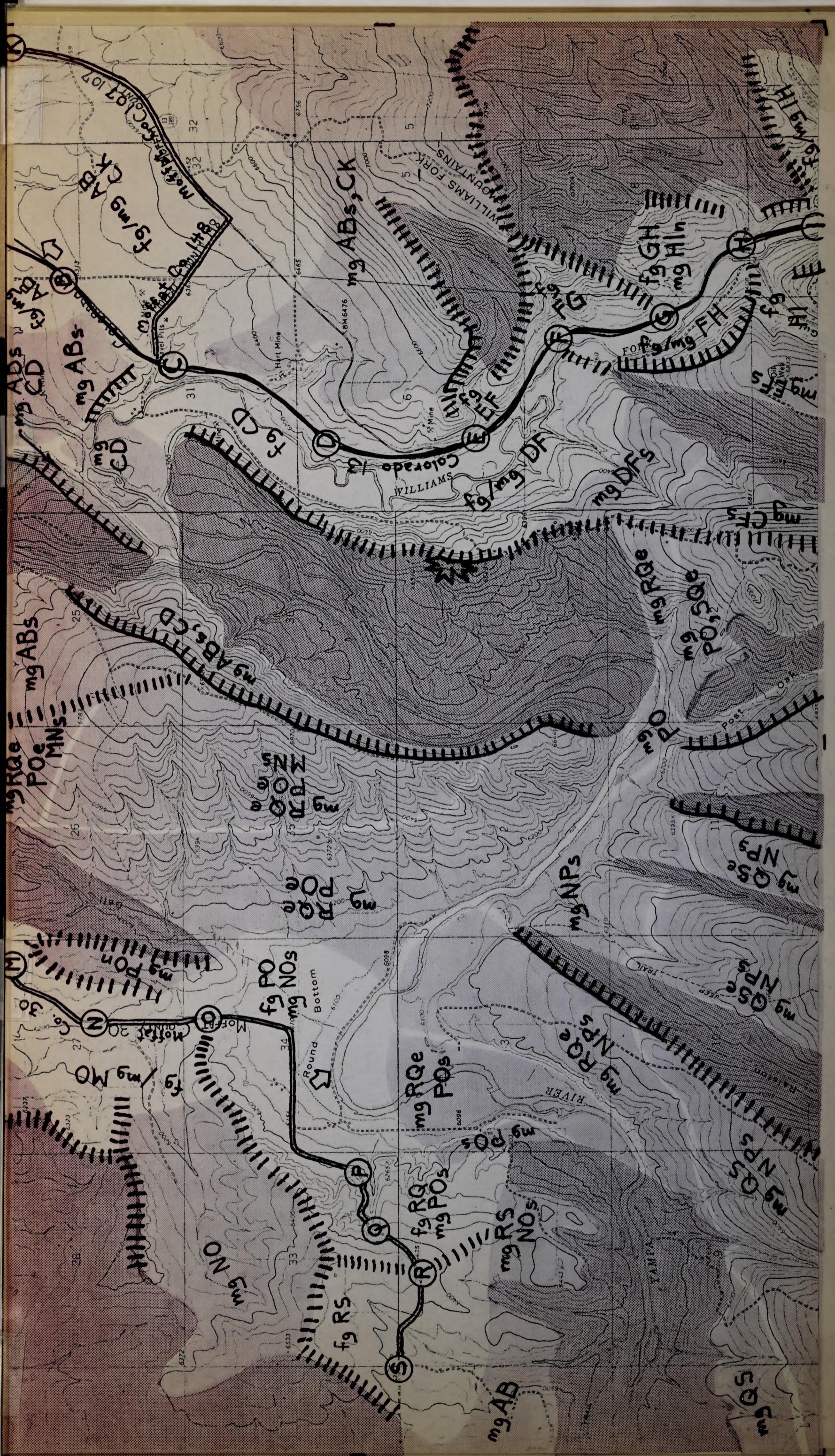
Moffat Co. 30 County Roads: Surfaced Improved/Graveled

Capital Letters Denote Viewshed Sequence Points

Arrow Indicates General Direction of Outstanding View

LANDSCAPE  
VISUAL UNIT  
CLASSIFICATION

- Foreground (fg), Middleground (mg) or Background (bg)
- Only visible northbound (n), southbound (s) eastbound (e), westbound (w)
- mg NOS
- Viewshed Sequence from which Landscape is Visible







## B. SCENIC QUALITY (URA STEP III)

As a measure of landscape variety, the scenic quality portion of the inventory consists of two parts: 1) determination of landscape types and 2) actual scenic quality rating.

But frames of reference must first be established to objectively evaluate inherent scenic values. For example, comparison of landscape variety in Routt County with that of Weld County (northeastern Colorado) is misleading because this statewide basis for comparison would render most of Routt County as outstanding scenery and most of Weld County as minimal scenery. This approach would provide no relative guidance on a regional basis to assist in determining visual management objectives and thereby restrict visual encroachments from units having greater landscape variety (inherent scenic value).

In reality, the overall landscape character in each region objectively establishes a valuable basis for comparison. By definition, the largest portion of any landscape has characteristic (B) scenic quality; smaller units within that region have either greater (outstanding - A) or lesser (minimal - C) landscape variety.

Colorado is renowned for its colorful and spectacular scenery. Nevertheless, there are considerable regional differences between the scenery of the Central Rocky Mountains, that of the High Plains and that of the Colorado Plateau (western Colorado); there are physiographically -- and therefore visually -- essentially three "Colorados". Three Scenic Quality Evaluation Charts have been prepared to reflect these differences and to establish a realistic basis for evaluating landscape variety (the chart for the Colorado Plateau applies to the problem in this booklet and follows on page 13; the remaining two are appended for future use).

The weighing of the various factors on these charts and the range of total scores is designed to assist in arriving at a more objective evaluation of scenic quality.

URA Step 3 documents consist of map overlays and narratives displaying the following information:\*

### Part 1 - Landscape types;

Factors 1-4 on the appropriate chart for the physiographic region (Rocky Mountain, Colorado Plateau, High Plains) should be used in delineating landscape types and defining them in narrative forms.

### Part 2 - Scenic quality;

All factors 1-10 are to be considered in arriving at a judgment of scenic quality for each landscape type. A narrative description should be prepared for outstanding (A) and minimal (C) scenic quality classes addressing each of the factors 1-10 with all judgments adequately justified. All scenic quality classes should also be delineated.

\* Supporting resource information needed to complete this section include vegetative type maps and aerial photos (see Appendix A-3).



SCENIC QUALITY EVALUATION CHART - Colorado Plateau physiographic region

FACTORS	OUTSTANDING (A)	CHARACTERISTIC (B)	MINIMAL (C)	Notes - for justification to change from Class B (characteristic) to either Class A or C
1. LANDFORMS & ROCK OUTCROPPINGS (relief, scale & color and variety)	<ul style="list-style-type: none"> <li>— canyons</li> <li>— cliffs</li> <li>— badlands</li> <li>— hogbacks</li> <li>— desert valley bottoms</li> <li>— mesa tops &amp; plateaus</li> <li>— hilly rolling benches dissected by gulches</li> </ul>	<ul style="list-style-type: none"> <li>— canyons</li> <li>— cliffs</li> <li>— badlands</li> <li>— hogbacks</li> <li>— desert valley bottoms</li> <li>— mesa tops &amp; plateaus</li> <li>— hilly rolling benches dissected by gulches</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>1</li> <li>2</li> <li>1</li> <li>2</li> <li>1</li> </ul>	<p>Outstanding canyons have great depth, high cliffs with low to moderate talus slopes, and vivid geologic colors - great variety essential.</p> <p>Outstanding cliffs have great height and low to moderate talus slopes - great variety essential.</p> <p>Outstanding badlands are highly dissected, and vividly colored with many rock outcroppings - great variety essential.</p> <p>Outstanding hogbacks have considerable height with cliffs exposing vividly colored rock strata and present a rugged skyline silhouette - great variety essential.</p> <p>Minimal desert valley bottoms are extensive flat featureless areas, usually more than one mile from valley walls - lacking variety.</p> <p>Minimal mesa tops and plateaus are extensive flat featureless areas, usually more than 1/4 mile from rims (but depends on seen area analyses) - lacking variety.</p>
2. VEGETATION PATTERNS (color & variety)	<ul style="list-style-type: none"> <li>— desert shrublands</li> <li>— sagebrush lands</li> <li>— ponderosa pine forests</li> <li>— douglas fir forests</li> <li>— cottonwood river-bottoms</li> <li>— mountain brushlands</li> <li>— pinyon juniper woodlands</li> <li>— riparian willow grasslands</li> <li>— agricultural lands</li> </ul>	<ul style="list-style-type: none"> <li>— desert shrublands</li> <li>— sagebrush lands</li> <li>— ponderosa pine forests</li> <li>— douglas fir forests</li> <li>— cottonwood river-bottoms</li> <li>— mountain brushlands</li> <li>— pinyon juniper woodlands</li> <li>— riparian willow grasslands</li> <li>— agricultural lands</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>1</li> <li>2</li> <li>1</li> <li>2</li> <li>1</li> <li>2</li> <li>1</li> </ul>	<p>Minimal desert shrublands and sagebrushland are broad expanses of uniform vegetative cover - lacking variety.</p> <p>Outstanding ponderosa pine - douglas fir forests are stands with mature old growth timber, or intermixed with meadows and aspen groves - great variety essential.</p> <p>Outstanding cottonwood river bottoms are groves in otherwise arid treeless environments - great variety essential.</p> <p>Outstanding mountain brushlands are areas broken up into irregular shaped clumps of brush interspersed with grassland - great variety essential.</p> <p>Outstanding agricultural lands include orchards, irrigated riparian meadows, pastoral landscapes, etc. These attract the eye and often stand out sharply against adjacent terrain - great variety essential.</p>
3. WATER FEATURES (presence & variety)	<ul style="list-style-type: none"> <li>— water present in creek pond or small reservoir or a large variety of water features</li> </ul>	<ul style="list-style-type: none"> <li>— water present in creek pond or small reservoir or a large variety of water features</li> </ul>	<ul style="list-style-type: none"> <li>2</li> <li>4</li> <li>2</li> </ul>	<p>Base evaluation of water features on most favorable time of year, usually spring runoff or early summer. Dominant water features are usually cascading whitewater or reflective still water.</p>



FACTORS	OUTSTANDING (A)	CHARACTERISTIC (B)	MINIMAL (C)	Notes
4. LAND USES	<input type="checkbox"/> natural	<input type="checkbox"/> pastoral/cropland	<input type="checkbox"/> mining	<input type="checkbox"/> urban
5. INTRUSIONS	none	few inharmonious intrusions	dominated by in-harmonious intrusions	Part of landscape type determination and basis for judging factor 5 but is not weighted.
6. LANDMARKS	dominant (foreground-middle-ground)	present (background)	absent	Intrusions are judged in terms of harmony with land uses - a discordant element such as block pattern piñon juniper chaining in a natural landscape type might be a harmonious element in pastoral landscape type.
7. SPATIAL ENCLOSURE	strong sense (foreground-middle-ground walls)	moderate sense (middleground walls)	lacking	Landmarks are usually distinctive landforms (mountain peak) or unusual rock outcroppings (pinnacle) which orient people and contribute to a strong sense of place.
8. PANORAMIC EXPOSURE	views to distant background (more than 15 miles) & to intermediate zones as well.	views to background (5 to 15 miles), including foreground and middleground.	lacking	Spatial enclosure - a sense of spatial enclosure (outdoor space) is created by steep landforms or forest edges (the walls) enclosing a more or less flat landform or water surface (the floor).
9. CULTURAL FEATURES	prominent archaeological or historic structures, or cultural land patterns (e.g. orchards, strip farming, etc.)	some archaeologic or historic evidence visible or recent cultural land patterns.	no visible evidence	Ridges, rims and desert valley bottoms often afford distant views and increase landscape variety.
10. VISUAL UNIQUENESS	unique or rare within region	interesting or noteworthy	very common with-in region	Visible cultural features (pre-historic, historic or recent) add visual interest and increase landscape variety.
				Relative visual uniqueness within a region adds to the visual interest. (Don't confuse with interpretive-educational uniqueness.)
				<input type="checkbox"/> 0

Factors 1-10 determine scenic quality class--Factors 1-4 determine landscape types  
TOTAL    16 or more = Outstanding (A); 10% to 25% of region  
      7 to 15 = Characteristic (B); 50% to 80% of region  
      6 or less = Minimal (C); 10% to 25% of region



## Part 1 - Defining Landscape Types

### a. Procedure:

1. Define landscape types on basis of similarity of (using factors 1-4 on the Scenic Quality Chart):
  - landform and rock outcroppings
  - vegetation patterns
  - water features
  - land uses
    - natural
    - pastoral
    - mining
    - urban
2. Delineate landscape types on maps
3. Describe landscape types in narrative form in terms of visual dominance elements:
  - form
  - line
  - color
  - texture

### b. Application:

Unlike steps A (Visual Zones), B-2 (Scenic Quality itself) and C (Visual Sensitivity); this definition of landscape types has no direct input into determination of Visual Quality Objective Classes. It's two primary purposes are to serve as:

1. Input into Step B-2, determination of actual Scenic Quality, and
2. A narrative landscape description for completing the Contrast Rating (Section E) and for Reducing Visual Contrast (Section F).

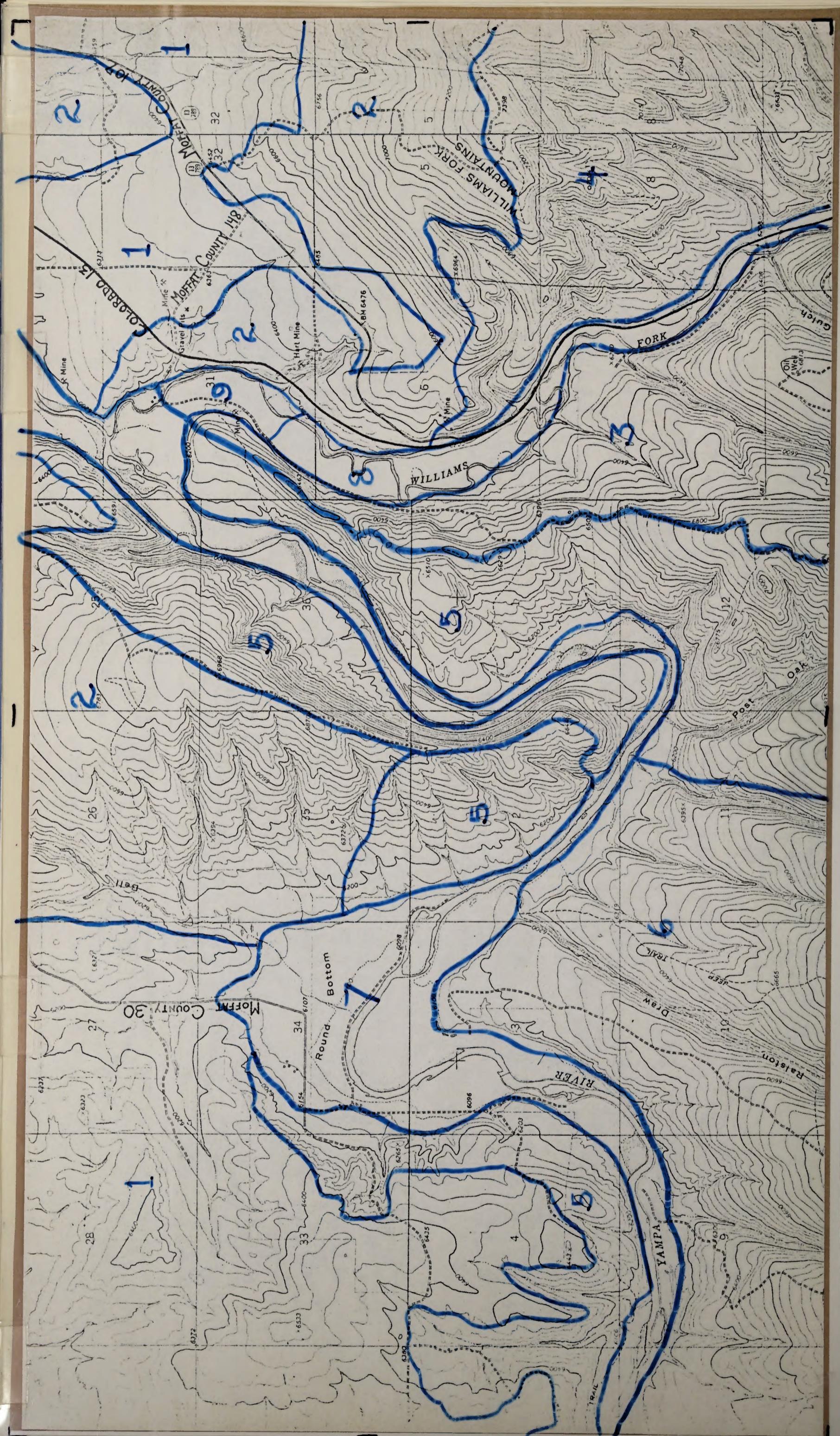
V  
R  
M  
B-1

landscape  
types



Landscape Type descriptions for base map overlay

1. Landform in this type is rolling to flat and gently sloping, and consists largely of dryland cultivated wheat fields. Fields conform largely to an irregular shape following natural contours on mesa tops; however, some rectilinear forms are created by individual fields. Line dominance is largely exhibited along the periphery of fields, in roads and at the horizon. Color varies with the season of year and with farming practices: from gray-brown, to green, to a light buff-yellow. Fields are usually fine-textured in middleground landscapes regardless of season.
2. Rolling to rugged sagebrush landscapes occupy this area. Line dominance is usually exhibited in drainage patterns, roads, trails and along the horizon. Color appears as a dull blue-green hue throughout this type. Texture appears coarse, medium and fine in the foreground, middleground and background respectively.
3. Roughly sub-angular to rolling landform of this landscape type affronts the conspicuous curvilinear form of the Williams Fork River and Colorado highway 13; both are strongly line-dominant features. Rimrock outcrops are other horizontally-oriented and strongly line-dominant features of this landscape type. Coarse-textured and scattered stands of mountain shrub types occupy this landscape type. The landform and rock outcrops are buff to brown in color. North-facing slopes are speckled with purple-brown (winter) to green(summer) mountain shrub species.
4. This landscape type is very similar to no. 3; however, these south-facing slopes are speckled, yearlong, with coarse-textured dark green pinon/juniper trees.
5. This landscape type consists of rather rugged and steeply-sloping sagebrush-covered terrain. Because of steep slopes, rimrock exposures are common; their sub-angular form dominates some of this terrain--though most of it is steeply pitching and broken. Lines are especially dominant in ledges and at the horizon. The Yampa River is an especially prominent curvilinear form visible from this landscape. Rimrock outcrops are varicolored buff, brown and red colors; however, they are generally dull and quite subdued. Texture ranges from medium to coarse (in rimrock).
6. This landscape type compares with that of no. 2, however it is speckled with coarse-textured purple-brown (winter) to green (summer) mountain shrub vegetation.
7. Fine textured irrigated meadows and grassy pastoral fields lie adjacent to the dominant curvilinear form of the meandering Yampa River which is flanked by scattered coarse-textured cottonwood groves. Landform is essentially flat, although adjacent rocky hillsides contrast sharply with it. The river itself and the floodplain contact with adjacent hillsides form strong horizontal line dominance while the trees, especially at foreground distances, have strong vertical line dominance. Color varies widely with the seasons, from vivid green to buff to white. Moving water is a perennial feature of this landscape type.
8. Though the Williams Fork River is of a smaller scale than the Yampa, this landscape type is similar to no. 7. The greatest differences are that moving water is not always conspicuous, and this landscape is encroached upon by the strongly line-dominant and curvilinear Colorado highway 13.
9. This landscape type is merely a section of no. 8 that contains visual intrusions from the old Silengo Mine (currently Empire Energy's underground mine); line and color-dominant mining equipment are the most conspicuous elements in this landscape type.



Part 2 - Determine Scenic Quality

- a. Assume scenic quality of a major portion of each landscape type to be: CHARACTERISTIC (50-80% of region) - define sub-types within each landscape with OUTSTANDING (10-25% of region) and MINIMAL (10-25% of region) scenic quality on the basis of scenic quality factors, Nos. 1-10 on the appropriate scenic quality evaluation chart.
- b. Compare each landscape type (B-1) to the physiographic region and on the basis of scenic quality factors, classify each landscape type as:  
OUTSTANDING, COMMON, or MINIMAL scenic quality.
- c. Prepare a narrative description that justifies Outstanding (A) and Minimal (C) scenic quality ratings by addressing each of the scenic quality factors, 1-10. Narrative descriptions should be supplemented by photographs. All photographs should be taken with a normal lens (50-55mm) using a fine grained Black and White film (e.g., Panatomic-X, ASA 32). Where it is desirable to depict colors, color photographs should supplement (not replace) Black and White photo documentation.

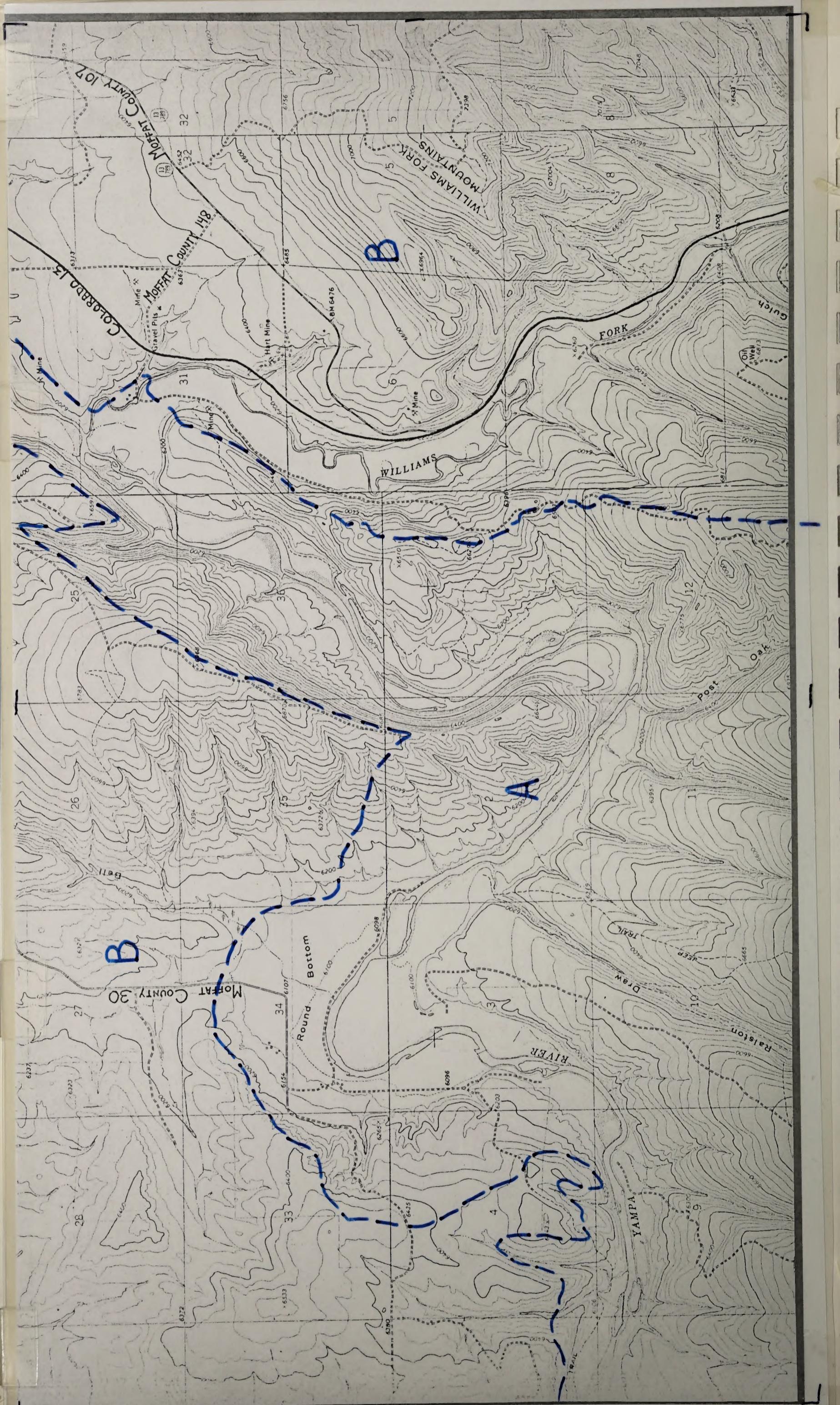
V  
r  
m  
B-2

Scenic  
quality



Narrative Description to Provide Justification for Outstanding Scenery  
(Class A).

Outstanding landforms and rock outcroppings are scattered along the immediate influence zone of the Yampa River which is generally known as Little Yampa Canyon. A wide variety of vegetation includes outstanding cottonwood river bottoms with adjacent stands of pinon-juniper and mountain shrub species interspersed in a rolling to rugged sagebrush landscape. The Yampa River itself dominates this landscape; it is always in view and its motion is apparent. This area is largely in its natural condition having only a few intrusions in the form of unimproved roads and trails. Near the rim of this small canyon, panoramic views extend to background distances. Within the canyon, foreground walls create a strong sense of spatial enclosure. There is some cultural evidence of prehistoric occupation and some irrigated hay meadows. Though the area is not unique, it is rather interesting and noteworthy. As a result of these inherent scenic features, the area was classified as having outstanding scenic value.







### C. VISUAL SENSITIVITY (URA STEP III)

1. Define areas, sites and corridors with HIGH, MODERATE and LOW visual sensitivity based on visual sentitivity guidelines (pp. 25 - 26 ).
2. Delineate on map

V  
R  
M  
C

visual  
sensitivity



### High Sensitivity

#### A. Viewsheds of

1. those portions of Interstate, State and U.S. Highway system including roadside rest areas which have not been visually encroached on within the immediate foreground by urban, suburban, mountain cabin/condominium, commercial, industrial, overhead powerline or outdoor advertising developments.
2. communities whose economic base is largely dependent on tourism, or with a significant retired or urban commuter population, or with a large portion of the housing being second homes (mountain cabins/condominiums).
3. components to, or areas proposed for inclusion in, the National Wilderness Preservation System, or managed as primitive or natural areas by BLM or the State of Colorado.
4. National Parks or Monuments
5. Components of, or segments proposed for, inclusion in the National Wild and Scenic River system.
6. archaeologic or historic sites/districts on the National Register.
7. intensively developed and utilized recreational or interpretive sites, water bodies and travel routes, including trails within National Recreation Areas, National Wildlife Refuges and State Parks and State Recreation Areas, or BLM-administered lands.

B. Other areas as determined by the District/Area Managers due to local political considerations or relationship of BLM lands to land uses/zoning of adjoining lands, with written justification.

### Moderate Sensitivity

#### A. Viewsheds of

1. county roads and segments of Interstate, State and U. S. Highway system not falling under high sensitivity.
2. communities whose economic base is largely dependent on grazing, timber harvest, mineral extraction or energy development
3. developed but not intensively utilized recreational or interpretive sites and travel routes, including trails with National Recreation Areas, National Forests, National Wildlife Refuges, State Parks and Recreation Areas or BLM administered lands.
4. Areas or corridors with significant hiking, backpacking, cross-country skiing, snowmobiling, jeeping, motorcycling, equestrian, hunting or fishing use.
5. Areas seen from recommended routes for light aircraft.

B. Other areas as determined by the District/Area Managers due to local political considerations or relationship of BLM lands to zoning of adjoining lands, with written justification.



Low Sensitivity

- A. Viewsheds seldom seen by the general public, i.e., not falling into high or moderate sensitivity
- B. Areas as determined by the District/Area Manager due to local political considerations or where the relationship of BLM lands to land uses/zoning on adjoining lands warrant low visual sensitivity.

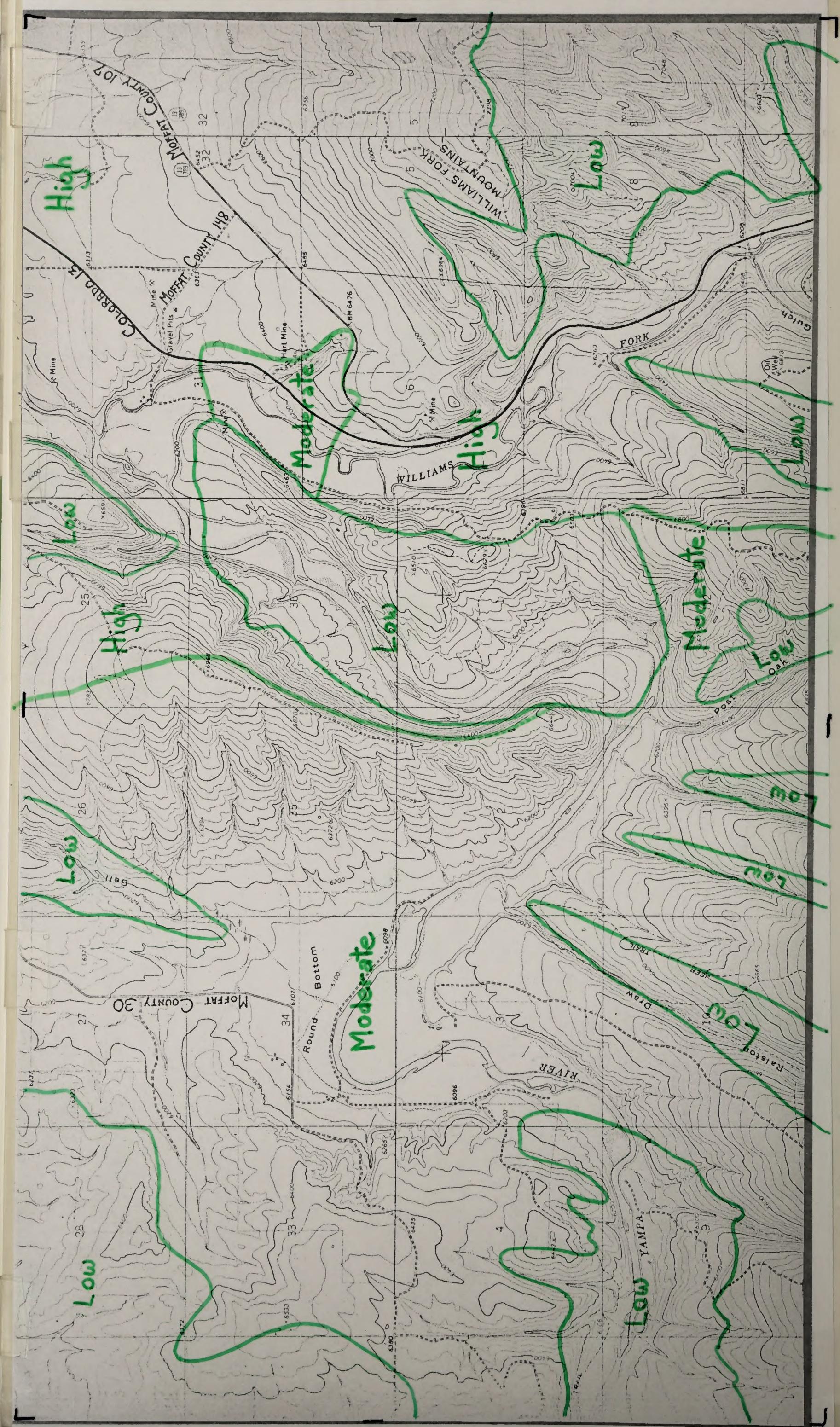


### Visual Sensitivity Classification for Base Map Overlay

The viewsheds of Moffat County 30 have "moderate" sensitivity. Viewsheds of county roads 107 and 148 overlap with that of Colorado highway 13, and therefore are mapped accordingly; visual sensitivity on viewsheds of Colorado 13 is "high". One portion, however, having been visually encroached upon in the immediate foreground by the Silengo Mine, must be classified as "moderate" sensitivity (see page 22, item A-1) (foreground and middleground must be delineated separately in areas of high sensitivity to be able to make this distinction).

All areas not visible from public roads (i.e., seldom seen) are classified as "low" sensitivity.

The base map contains no areas that are visible only as background, either near or distant. However, if it did, they would also be classified as being of "low" sensitivity.







D. VISUAL QUALITY OBJECTIVE CLASSES (MFP Step I)

SCENIC QUALITY	VISUAL ZONES				
	fg-mg	bg	fg-mg	bg	ss & dist. bg.
Primitive or Natural Areas	<	Class I	>		
Outstanding Scenery - A	<	Class II	>	Class III	
Characteristic Scenery - B	Class II		Class III		Class IV
Minimal Scenery - C	Class III		Class IV		
	High	Moderate	Low		

VISUAL SENSITIVITY

Class -- Degree of Contrast Permitted

- I      -Ecological changes; i.e. natural/primitive areas.
- II     -Changes not evident to casual observer; appear to be natural occurrences.
- III    -Changes subordinate to characteristic landscape; moderate contrast.
- IV    -Changes dominate in the short-run, but should appear natural in the long-run.
- V     -Interim classification for areas needing rehabilitation.

Numerical Contrast Rating Limits

per element: total contrast rating for any one feature:

	short-term:*	long-term:**
II	1	13
III	2	20
IV	3	24

(structure 27)

\* the short-term extends from initiation of the proposed project to five years after substantive project completion.

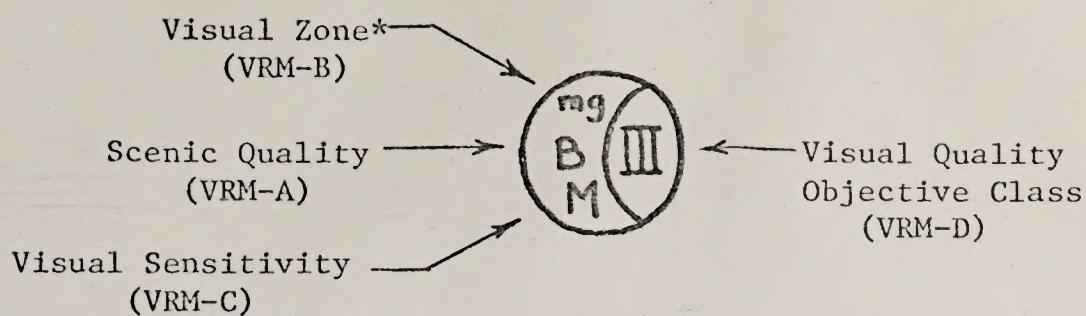
\*\* considers natural weathering and healing -- not the effect of mitigating measures which may be prescribed to reduce contrast.

V  
R  
M  
D

visual  
quality  
objective  
classes

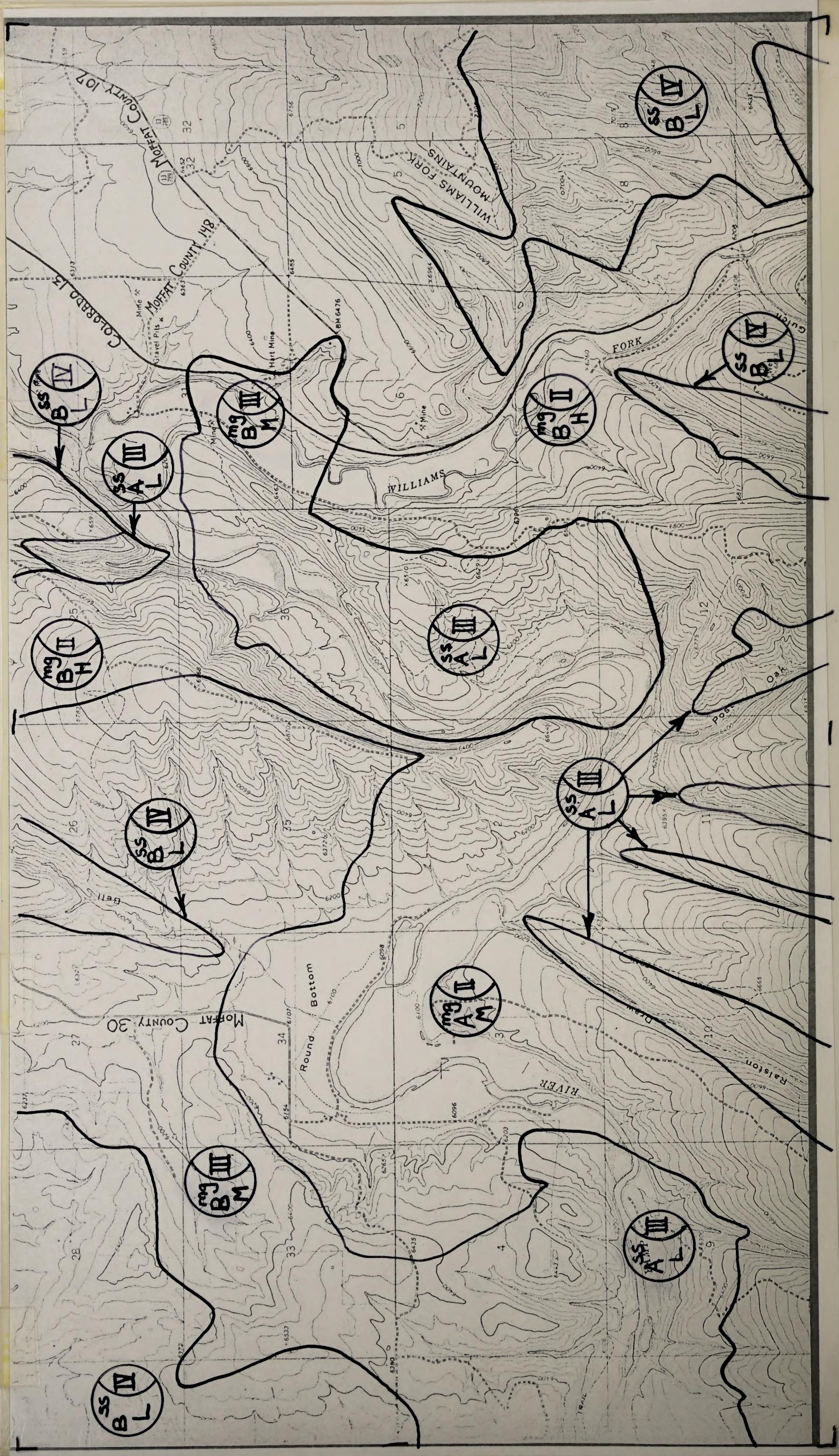


Visual Quality Classes for Base Map Overlay



\* [because both foreground and middleground (fg-mg) visual zones are treated as a unit on the Visual Quality Objective Class matrix (page 29), only mg will be shown in the Visual Quality Objective Class overlay symbol for the sake of brevity]

By plugging VRM steps A-C into the matrix on page 29, these Quality Classes have been determined. Note that there are several different combinations of values from steps A-C that will give the same Quality Class [e.g., note the Silengo Mine-Yampa River area (seldom seen) on the attached overlay].



## **Part II**

# **VISUAL CONTRAST**







#### E. VISUAL CONTRAST RATING (MFP STEP III, EIIS & EARs)

The following analysis should proceed only with an awareness of the concepts introduced on page 39. These principles indicate that greater landscape variety is desirable, provided that visual harmony is maintained. Therefore, all noticeable changes are not adverse; some may borrow from the existing landscape character, contribute to greater variety and yet maintain visual harmony.

#### **Visual Contrast Application Procedure:**

The ease of detection for each element is multiplied by the degree of contrast and the results are added to get a total score. Use the following scales to complete the contrast rating:

<u>Ease of Detection</u>		<u>Degree of Contrast</u>
Form	- 4	Strong - 3
Line	- 3	Moderate - 2
Color	- 2	Weak - 1
Texture	- 1	None - 0

## EASE OF DETECTION x DEGREE OF CONTRAST

Visual Dominance Elements	<u>Example:</u> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Form</td><td style="width: 15%;">-</td><td style="width: 15%;">4</td><td style="width: 15%;">x</td><td style="width: 15%;">Weak</td><td style="width: 15%;">-</td><td style="width: 15%;">1</td><td style="width: 15%;">=</td><td style="width: 15%;">4</td></tr> <tr> <td>Line</td><td>-</td><td>3</td><td>x</td><td>Strong</td><td>-</td><td>3</td><td>=</td><td>9</td></tr> <tr> <td>Color</td><td>-</td><td>2</td><td>x</td><td>Moderate</td><td>-</td><td>2</td><td>=</td><td>4</td></tr> <tr> <td>Texture</td><td>-</td><td>1</td><td>x</td><td>None</td><td>-</td><td>0</td><td>=</td><td>0</td></tr> <tr> <td></td><td></td><td></td><td></td><td>Total</td><td></td><td></td><td></td><td>17</td></tr> </table>	Form	-	4	x	Weak	-	1	=	4	Line	-	3	x	Strong	-	3	=	9	Color	-	2	x	Moderate	-	2	=	4	Texture	-	1	x	None	-	0	=	0					Total				17
Form	-	4	x	Weak	-	1	=	4																																						
Line	-	3	x	Strong	-	3	=	9																																						
Color	-	2	x	Moderate	-	2	=	4																																						
Texture	-	1	x	None	-	0	=	0																																						
				Total				17																																						

In completing the contrast rating, one needs to analyze whether or not the proposed activity "fits", or is in character with, each of the three landscape features. Each change or "deviation" must be evaluated according to its ability to borrow from the visual dominance elements inherent in the characteristic landscape.

Do for each landscape feature  
(See Page 31)

Y  
R  
M

# visual contrast rating



CONTRAST RATING FORMAT

Degree of Contrast {

strong	=	3
moderate	=	2
weak	=	1
none	=	0

Contrast

LANDFORM

Contrast Proposed Change in Landform with Existing Landform

Form      4 x \_\_\_\_\_ = \_\_\_\_\_  
 Line     3 x \_\_\_\_\_ = \_\_\_\_\_  
 Color    2 x \_\_\_\_\_ = \_\_\_\_\_  
 Texture 1 x \_\_\_\_\_ = \_\_\_\_\_

Total                  \_\_\_\_\_

VEGETATION

Contrast Proposed Change in Vegetation with Existing Vegetation

Form      4 x \_\_\_\_\_ = \_\_\_\_\_  
 Line     3 x \_\_\_\_\_ = \_\_\_\_\_  
 Color    2 x \_\_\_\_\_ = \_\_\_\_\_  
 Texture 1 x \_\_\_\_\_ = \_\_\_\_\_

Total                  \_\_\_\_\_

STRUCTURES

Contrast Proposed Change in Man-made Structures with Existing Landform

Form      4 x \_\_\_\_\_ = \_\_\_\_\_  
 Line     3 x \_\_\_\_\_ = \_\_\_\_\_  
 Color    2 x \_\_\_\_\_ = \_\_\_\_\_  
 Texture 1 x \_\_\_\_\_ = \_\_\_\_\_

Total                  \_\_\_\_\_

Contrast Proposed Change in Man-made Structures with Existing Vegetation

Form      4 x \_\_\_\_\_ = \_\_\_\_\_  
 Line     3 x \_\_\_\_\_ = \_\_\_\_\_  
 Color    2 x \_\_\_\_\_ = \_\_\_\_\_  
 Texture 1 x \_\_\_\_\_ = \_\_\_\_\_

Total                  \_\_\_\_\_

Contrast Proposed Change in Man-made Structures with Existing Man-made Structures IF PRESENT AND SIGNIFICANT

Form      4 x \_\_\_\_\_ = \_\_\_\_\_  
 Line     3 x \_\_\_\_\_ = \_\_\_\_\_  
 Color    2 x \_\_\_\_\_ = \_\_\_\_\_  
 Texture 1 x \_\_\_\_\_ = \_\_\_\_\_

Total                  \_\_\_\_\_



### Activity Description

#### Right-of-way:

The proposed railroad right-of-way would be an especially form-dominant feature; the attached overlay shows the depth of major cuts and fills. Form dominance would be accentuated where extensive rock cuts are planned. Cut and fill faces would appear crescent-shaped when viewed obliquely; they would appear more angular when viewed parallel to the proposed railroad routing.

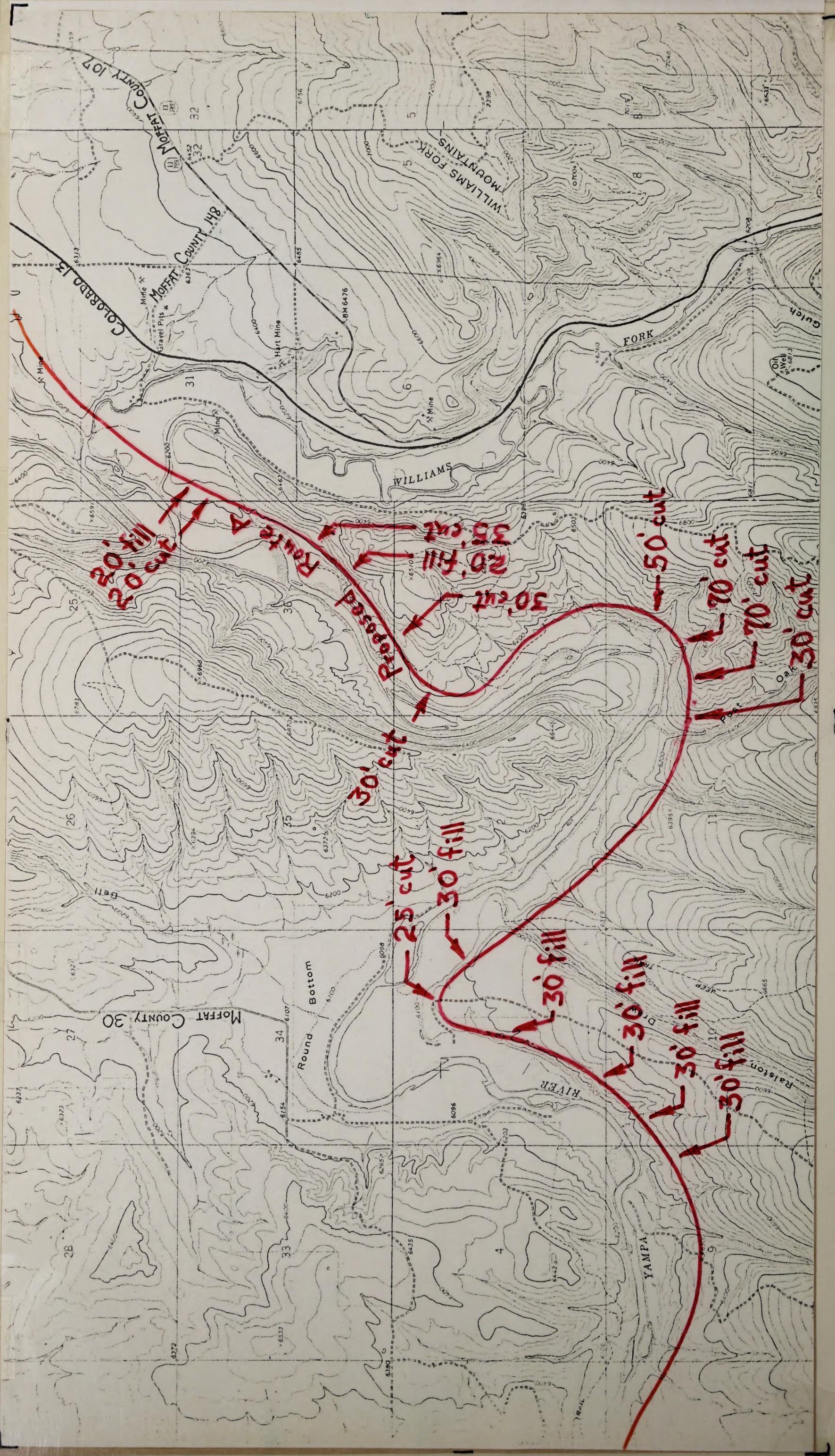
Line dominance would be exhibited by the constructed right-of-way as a unit when viewed in the distant middleground. However, at closer distances, line dominance would be horizontally expressed in the graded right-of-way itself and also in the contact between graded areas and natural terrain in the form of diagonal or curvilinear features.

Color dominance would be encountered where construction exposes lighter-colored mineral earth and rock faces.

Most of the disturbed areas will be smooth-textured after grading, though medium-textured rock cut faces should be expected.

#### Railroad itself:

This portion of the railroad would consist only of cross ties and the rail itself. Form dominance would only be evident at foreground distances, as a narrow curvilinear band. Much more obvious would be its line dominance which would accentuate the line dominance of the right-of-way itself. Color dominance would be expressed in the reflectiveness of the rails, but only when viewed against the sun. The aspect of texture would, for all practical purposes, be negligible.



Contrast Rating for Proposed Action

The attached overlay shows the proposed routing for the W. R. Grace and Co. coal haulage railroad. For illustrative purposes, the following contrast rating will be completed for that portion of the route that lies within Landscape Types 5 and 6 (see page 17) (from the confluence of the Yampa River with the Williams Fork River--to Round Bottom). The larger cuts and fills are shown on the attached overlay.

Falls Within  
Objective Classes II & III

FOR  
ROUTE A  
IN  
LANDSCAPE  
5

Contrast Proposed Change in  
Landform with Existing Landform

Form	$4 \times \frac{3}{a/b} = 12$
Line	$3 \times \frac{2}{a/b} = 6$
Color	$2 \times \frac{2}{a/b} = 4$
Texture	$1 \times \frac{0}{a/b} = 0$
Total	$\underline{\underline{22a/b}}$

Falls Within  
Objective Class II

FOR  
ROUTE A  
IN  
LANDSCAPE  
6

Contrast Proposed Change in  
Landform with Existing Landform

Form	$4 \times \frac{2}{a/b} = 8$
Line	$3 \times \frac{2}{a/b} = 6$
Color	$2 \times \frac{2}{a/b} = 4$
Texture	$1 \times \frac{0}{a/b} = 0$
Total	$\underline{\underline{18a/b}}$

Contrast Proposed Change in  
Vegetation with Existing Vegetation

Form	$4 \times \frac{2}{a/b} = 8$
Line	$3 \times \frac{2}{a/b} = 6$
Color	$2 \times \frac{2}{a/b} = 4$
Texture	$1 \times \frac{1}{a/b} = 1$
Total	$\underline{\underline{19a/b}}$

Contrast Proposed Change in  
Vegetation with Existing Vegetation

Form	$4 \times \frac{1}{a/b} = 4$
Line	$3 \times \frac{2}{a/b} = 6$
Color	$2 \times \frac{2}{a/b} = 4$
Texture	$1 \times \frac{1}{a/b} = 1$
Total	$\underline{\underline{15a/b}}$

Contrast Proposed Change in Man-made  
Structures with Existing Landform

Form	$4 \times \frac{1}{a/b} = 4$
Line	$3 \times \frac{2}{a/b} = 6$
Color	$2 \times \frac{1}{a/b} = 2$
Texture	$1 \times \frac{0}{a/b} = 0$
Total	$\underline{\underline{12}}$

Contrast Proposed Change in Man-made  
Structures with Existing Landform

Form	$4 \times \frac{1}{a/b} = 4$
Line	$3 \times \frac{2}{a/b} = 6$
Color	$2 \times \frac{1}{a/b} = 2$
Texture	$1 \times \frac{0}{a/b} = 0$
Total	$\underline{\underline{12}}$

Contrast Proposed Change in Man-made  
Structures with Existing Vegetation

Form	$4 \times \frac{1}{a/b} = 4$
Line	$3 \times \frac{2}{a/b} = 6$
Color	$2 \times \frac{0}{a/b} = 0$
Texture	$1 \times \frac{0}{a/b} = 0$
Total	$\underline{\underline{10}}$

Contrast Proposed Change in Man-made  
Structures with Existing Vegetation

Form	$4 \times \frac{1}{a/b} = 4$
Line	$3 \times \frac{2}{a/b} = 6$
Color	$2 \times \frac{0}{a/b} = 0$
Texture	$1 \times \frac{0}{a/b} = 0$
Total	$\underline{\underline{10}}$

Contrast Proposed Change in Man-made  
Structures with Existing Man-made  
Structures IF PRESENT AND  
SIGNIFICANT

Form	$4 \times \frac{0}{a/b} = 0$
Line	$3 \times \frac{0}{a/b} = 0$
Color	$2 \times \frac{0}{a/b} = 0$
Texture	$1 \times \frac{0}{a/b} = 0$
Total	$\underline{\underline{0}}$

Contrast Proposed Change in Man-made  
Structures with Existing Man-made  
Structures IF PRESENT AND  
SIGNIFICANT

Form	$4 \times \frac{0}{a/b} = 0$
Line	$3 \times \frac{0}{a/b} = 0$
Color	$2 \times \frac{0}{a/b} = 0$
Texture	$1 \times \frac{0}{a/b} = 0$
Total	$\underline{\underline{0}}$

a/ These values exceed the allowable short-term contrast limits for Visual Quality Objective Class II (see page 26).

b/ These values exceed the allowable short-term contrast limits for Visual Quality Objective Class III (see page 26).







F. REDUCING VISUAL CONTRAST (MFP Step III, EISs & EARs)

1. Using the contrast rating as a guide, determine which aspects of the proposal could be modified to meet the Visual Quality Objectives.
2. How to reduce impact -- consider:
  - a. Reducing contrast, by:
    - 1.) Careful location
      - where natural change already exists
      - use natural topographic and vegetative screening
      - place in less visible areas
      - place in less sensitive areas
    - 2.) Minimize disturbance
      - of existing natural landscape character
    - 3.) Repetition of natural visual dominance elements
  - b. Maintain variety
  - c. Maintain harmony
3. Redesign or relocate the proposed project.
4. Revise the contrast rating: does the redesign meet the Visual Quality Objectives?

V  
R  
M      F

reducing  
visual  
contrast



## Reducing Visual Contrast by Redesigning Proposed Project

Partial mitigation of visual impacts of form and line could be accomplished by requiring all cut and fill slopes to be graded into a curving form that intersects adjacent undisturbed terrain at a very low angle to avoid sharp angular minus deviations. Excluding portions of the route which are to be built in bedrock, hydro mulch and/or excelsior matting could also be used to re-establish vegetation on cuts and fills to reduce minus deviations of color and texture.

After implementing the above mitigations, the contrast rating would be as follows, reflecting their effectiveness:

Falls Within Objective Classes II & III		Falls Within Objective Class II	
FOR ROUTE A	IN LANDSCAPE TYPE 5	FOR ROUTE A	IN LANDSCAPE TYPE 6
Contrast Proposed Change in Landform with Existing Landform		Contrast Proposed Change in Landform with Existing Landform	
Form	$4 \times \frac{2a}{ } = 8$	Form	$4 \times \frac{2a}{ } = 8$
Line	$3 \times \frac{2a}{ } = 6$	Line	$3 \times \frac{2a}{ } = 6$
Color	$2 \times \frac{2a}{ } = 4$	Color	$2 \times \frac{1}{ } = 2$
Texture	$1 \times \frac{0}{ } = 0$	Texture	$1 \times \frac{0}{ } = 0$
Total	<u><u>18a/b/</u></u>	Total	<u><u>16a/</u></u>
Contrast Proposed Change in Vegetation with Existing Vegetation		Contrast Proposed Change in Vegetation with Existing Vegetation	
Form	$4 \times \frac{2a}{ } = 8$	Form	$4 \times \frac{1}{ } = 4$
Line	$3 \times \frac{2a}{ } = 6$	Line	$3 \times \frac{2a}{ } = 6$
Color	$2 \times \frac{2a}{ } = 4$	Color	$2 \times \frac{1}{ } = 2$
Texture	$1 \times \frac{1}{ } = 1$	Texture	$1 \times \frac{1}{ } = 1$
Total	<u><u>19a/</u></u>	Total	<u><u>13</u></u>
Contrast Proposed Change in Man-made Structures with Existing Landform		Contrast Proposed Change in Man-made Structures with Existing Landform	
Form	$4 \times \frac{1}{ } = 4$	Form	$4 \times \frac{1}{ } = 4$
Line	$3 \times \frac{2a}{ } = 6$	Line	$3 \times \frac{2a}{ } = 6$
Color	$2 \times \frac{1}{ } = 2$	Color	$2 \times \frac{1}{ } = 2$
Texture	$1 \times \frac{0}{ } = 0$	Texture	$1 \times \frac{0}{ } = 0$
Total	<u><u>12</u></u>	Total	<u><u>12</u></u>
Contrast Proposed Change in Man-made Structures with Existing Vegetation		Contrast Proposed Change in Man-made Structures with Existing Vegetation	
Form	$4 \times \frac{1}{ } = 4$	Form	$4 \times \frac{1}{ } = 4$
Line	$3 \times \frac{2a}{ } = 6$	Line	$3 \times \frac{2a}{ } = 6$
Color	$2 \times \frac{0}{ } = 0$	Color	$2 \times \frac{0}{ } = 0$
Texture	$1 \times \frac{0}{ } = 0$	Texture	$1 \times \frac{0}{ } = 0$
Total	<u><u>10</u></u>	Total	<u><u>10</u></u>
Contrast Proposed Change in Man-made Structures with Existing Man-made Structures IF PRESENT AND SIGNIFICANT		Contrast Proposed Change in Man-made Structures with Existing Man-made Structures IF PRESENT AND SIGNIFICANT	
Form	$4 \times \frac{0}{ } = 0$	Form	$4 \times \frac{0}{ } = 0$
Line	$3 \times \frac{0}{ } = 0$	Line	$3 \times \frac{0}{ } = 0$
Color	$2 \times \frac{0}{ } = 0$	Color	$2 \times \frac{0}{ } = 0$
Texture	$1 \times \frac{0}{ } = 0$	Texture	$1 \times \frac{0}{ } = 0$
Total	<u><u>0</u></u>	Total	<u><u>0</u></u>

- a/ These values exceed the allowable short-term contrast limits for Visual Quality Objective Class II (see page 26).
- b/ These values exceed the allowable short-term contrast limits for Visual Quality Objective Class III (see page 26).

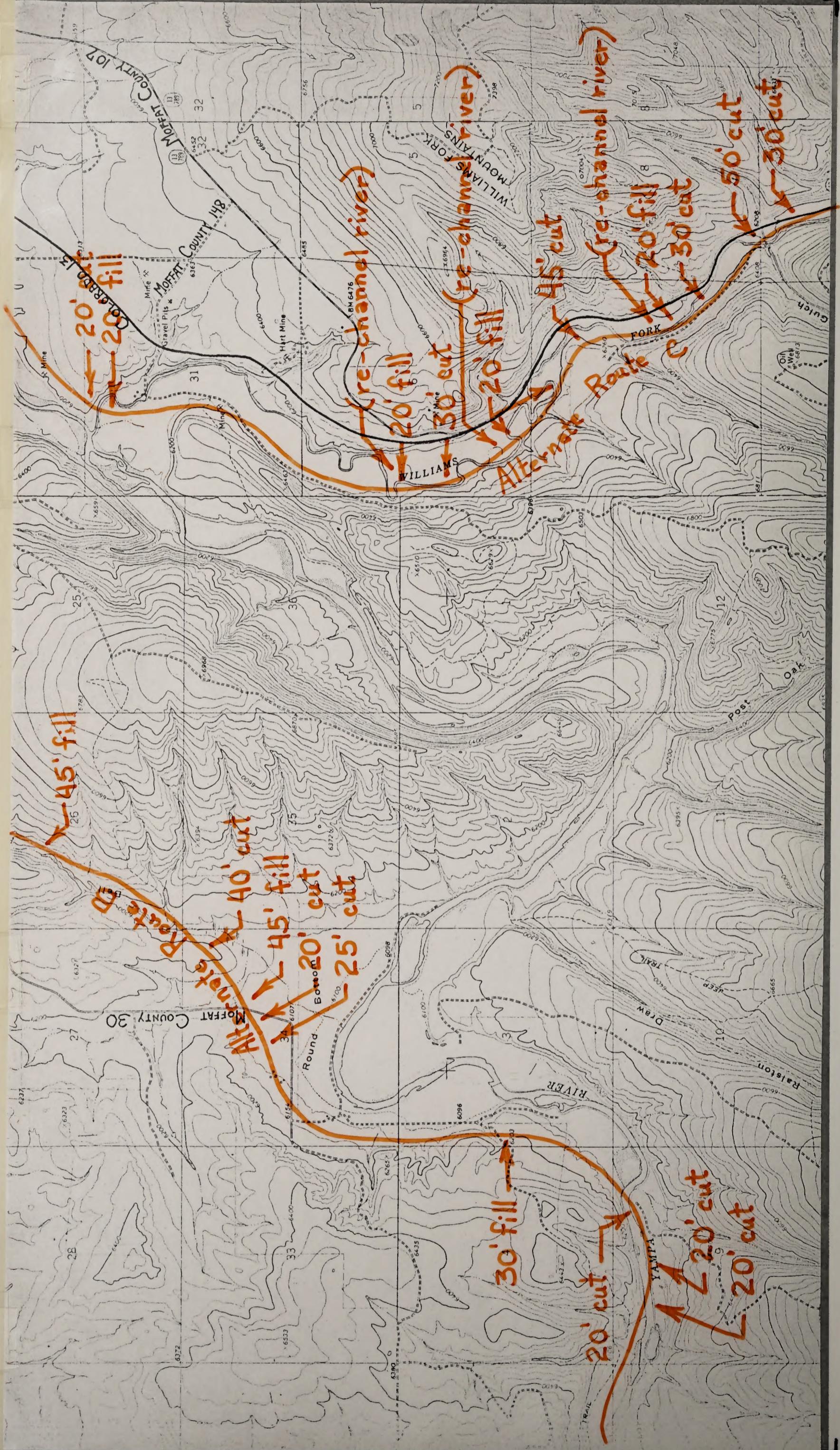
The mitigations allow for reducing the contrast, but not to within acceptable limits.



#### Relocation of the Proposed Action

Given the rigid engineering specifications for railroad construction (e.g., keeping on grade, right-of-way width requirements, massive cuts and fills in rugged terrain, etc.) minor changes in the proposed right-of-way are not feasible. However, alternative routes B and C, shown on the attached overlay, have been analyzed in an attempt to reduce visual contrast within acceptable limits.

The activity descriptions for alternate Routes B and C are essentially the same as for the proposed Route A (see page 32).



Reducing Visual Contrast by Relocation of the Proposed Project

Contrast Ratings for the segments of each alternate that falls within the most restrictive Objective Class are as follows:

Falls Within Objective Classes II & III		Falls Within Objective Classes II & III	
FOR ROUTE B IN LANDSCAPE TYPE 5		FOR ROUTE C IN LANDSCAPE TYPE 3	
Contrast Proposed Change in Landform with Existing Landform		Contrast Proposed Change in Landform with Existing Landform	
Form	$4 \times \frac{3a/b}{ } = \frac{12}{ }$	Form	$4 \times \frac{2a/}{ } = \frac{8}{ }$
Line	$3 \times \frac{2a/}{ } = \frac{6}{ }$	Line	$3 \times \frac{2a/}{ } = \frac{6}{ }$
Color	$2 \times \frac{2a/}{ } = \frac{4}{ }$	Color	$2 \times \frac{2a/}{ } = \frac{4}{ }$
Texture	$1 \times \frac{0}{ } = \frac{0}{ }$	Texture	$1 \times \frac{0}{ } = \frac{0}{ }$
Total	$\underline{\underline{22a/b/}}$	Total	$\underline{\underline{18a/}}$
Contrast Proposed Change in Vegetation with Existing Vegetation		Contrast Proposed Change in Vegetation with Existing Vegetation	
Form	$4 \times \frac{2a/}{ } = \frac{8}{ }$	Form	$4 \times \frac{2a/}{ } = \frac{8}{ }$
Line	$3 \times \frac{2a/}{ } = \frac{6}{ }$	Line	$3 \times \frac{2a/}{ } = \frac{6}{ }$
Color	$2 \times \frac{2a/}{ } = \frac{4}{ }$	Color	$2 \times \frac{2a/}{ } = \frac{4}{ }$
Texture	$1 \times \frac{1}{ } = \frac{1}{ }$	Texture	$1 \times \frac{1}{ } = \frac{1}{ }$
Total	$\underline{\underline{19a/}}$	Total	$\underline{\underline{19a/}}$
Contrast Proposed Change in Man-made Structures with Existing Landform		Contrast Proposed Change in Man-made Structures with Existing Landform	
Form	$4 \times \frac{1}{ } = \frac{4}{ }$	Form	$4 \times \frac{1}{ } = \frac{4}{ }$
Line	$3 \times \frac{2a/}{ } = \frac{6}{ }$	Line	$3 \times \frac{2a/}{ } = \frac{6}{ }$
Color	$2 \times \frac{1}{ } = \frac{2}{ }$	Color	$2 \times \frac{1}{ } = \frac{2}{ }$
Texture	$1 \times \frac{0}{ } = \frac{0}{ }$	Texture	$1 \times \frac{0}{ } = \frac{0}{ }$
Total	$\underline{\underline{12}}$	Total	$\underline{\underline{12}}$
Contrast Proposed Change in Man-made Structures with Existing Vegetation		Contrast Proposed Change in Man-made Structures with Existing Vegetation	
Form	$4 \times \frac{1}{ } = \frac{4}{ }$	Form	$4 \times \frac{1}{ } = \frac{4}{ }$
Line	$3 \times \frac{2a/}{ } = \frac{6}{ }$	Line	$3 \times \frac{2a/}{ } = \frac{6}{ }$
Color	$2 \times \frac{0}{ } = \frac{0}{ }$	Color	$2 \times \frac{0}{ } = \frac{0}{ }$
Texture	$1 \times \frac{0}{ } = \frac{0}{ }$	Texture	$1 \times \frac{0}{ } = \frac{0}{ }$
Total	$\underline{\underline{10}}$	Total	$\underline{\underline{10}}$
Contrast Proposed Change in Man-made Structures with Existing Man-made Structures IF PRESENT AND SIGNIFICANT		Contrast Proposed Change in Man-made Structures with Existing Man-made Structures IF PRESENT AND SIGNIFICANT	
Form	$4 \times \frac{0}{ } = \frac{0}{ }$	Form	$4 \times \frac{0}{ } = \frac{0}{ }$
Line	$3 \times \frac{0}{ } = \frac{0}{ }$	Line	$3 \times \frac{0}{ } = \frac{0}{ }$
Color	$2 \times \frac{0}{ } = \frac{0}{ }$	Color	$2 \times \frac{0}{ } = \frac{0}{ }$
Texture	$1 \times \frac{0}{ } = \frac{0}{ }$	Texture	$1 \times \frac{0}{ } = \frac{0}{ }$
Total	$\underline{\underline{0}}$	Total	$\underline{\underline{0}}$

- a/ These values exceed the allowable short-term contrast limits for Visual Quality Objective Class II (see page 26).
- b/ These values exceed the allowable short-term contrast limits for Visual Quality Objective Class III (see page 26).

The same mitigations as were applied to Route A (page 36) were applied here, but the resulting visual contrast still exceeded allowable limits because of similar Landscape Types through which both alternate routes pass. Note that the objective for Class II states that changes are not to be evident to the casual observer--that they should appear to be natural occurrences. Given the rugged nature of the terrain in association with the river, it is also not possible to meet the predetermined Visual Quality Objectives with either alternate route, B or C.

Had it been possible to relocate portions of either Route A, B or C, that now fall within Visual Quality Objective Class II, to Class III or Class IV areas, it would have also been possible to meet the allowable contrast limits.



BACKGROUND INFORMATION -- VRM CONCEPTS

The following five pages illustrate some of the concepts essential to a more complete understanding and a working knowledge of VRM. Several of these concepts and some of the figures have been extracted from National Forest Landscape Management (U.S. Forest Service, F.1, USDA Handbook 434, 1973).



## I. Characteristic Landscape

the overall impression created by the unique combination of landscape features (landform, vegetation and man-made structures) as seen in terms of visual dominance elements (form, line, color and texture).

### Dominance Elements (see third page of concepts, page 6)

**Form-** The three-dimensional shape of an object, or collection of objects, that appears unified.

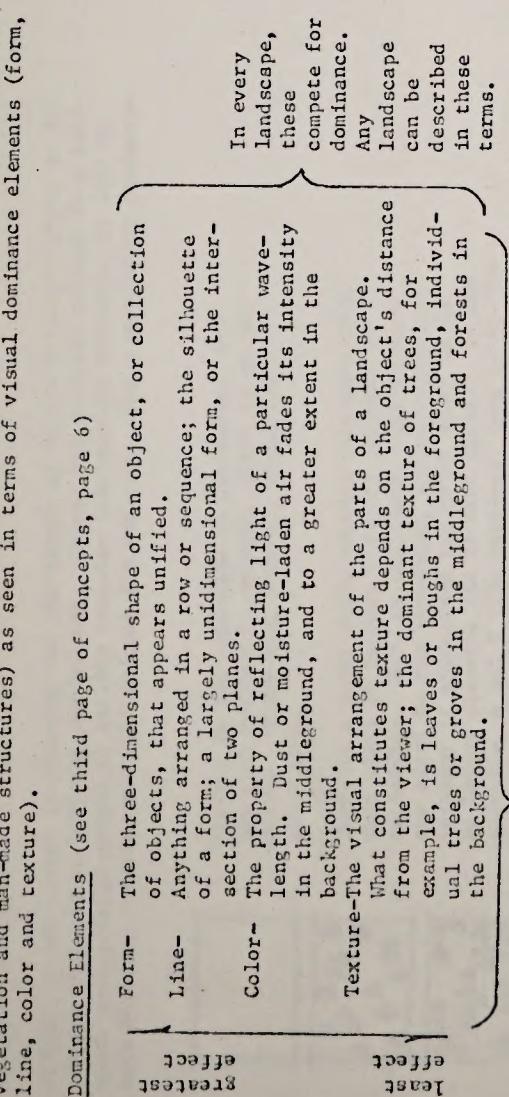
**Line-** Anything arranged in a row or sequence; the silhouette of a form; a largely unidimensional form, or the intersection of two planes.

**Color-** The property of reflecting light of a particular wavelength. Dust or moisture-laden air fades its intensity in the middleground, and to a greater extent in the background.

**Texture-** The visual arrangement of the parts of a landscape.

What constitutes texture depends on the object's distance from the viewer; the dominant texture of trees, for example, is leaves or boughs in the foreground, individual trees or groves in the middleground and forests in the background.

How you see these is affected by:



## II. Variable Factors

### A. Distance (Visual Zones)--(see third page of concepts, page 6)

**Foregrounds;** include that portion of the view wherein human-size features are easily discernable, as are the four visual building blocks--form line, color and texture. Texture of detail is visible here. They generally lie from one-quarter to one mile beyond the viewer.

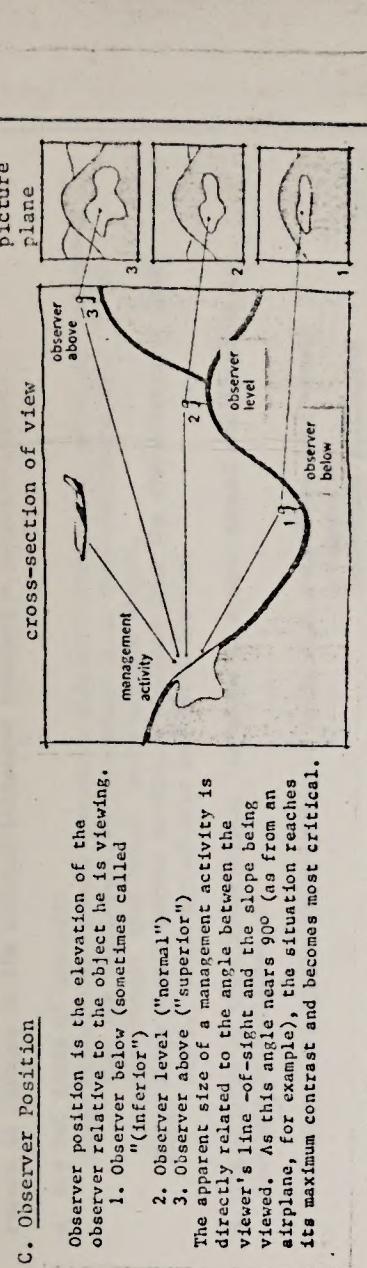
**Middlegrounds;** include larger-scale landscapes such as the three-dimensional quality of landforms and patterns of cloud shadows. Overall patterns of vegetation, landform and structures constitute texture which is no longer distinguishable in human-size features. Middlegrounds generally occur from the foreground limit up to 5-8 miles distant.

**Near Backgrounds;** include distant landscapes where colors and textures are subdued. Vegetation and landform are visible as patterns of light and dark; at this distance these patterns form what the eye perceives as texture. Backgrounds generally occur from the middleground limit up to 20 miles distant.

**Distant Backgrounds;** include that portion of the view generally beyond 20 miles, where landscapes appear as flat two-dimensional hazy blue shapes.

**B. Scale** Features occurring in foreground landscapes appear larger and therefore occupy a greater portion of the total picture plane, than if they were viewed at greater distances.

Changes in scale will also change the elements that dominate the view. For example, a form-dominant landscape (close) = a texture-dominant landscape (distant).



When landscape visual units are viewed rather obliquely, their portion of the total picture plane is relatively small. When viewed more directly (at a greater viewing angle), the unit occupies a greater portion of the picture plane and becomes more visible. This principle applies to changes in observer position in both the vertical (above diagram) and horizontal planes. Each can be read from a contour map by referring either to contour alignment (for horizontal plane--aspect) or to contour spacing (for vertical plane--slope), both with respect to the viewer's position.

### D. Light

**Backlighting-** Do not try to evaluate landscapes here, because details are obscured in the shadows which reduce contrast.

**Frontlighting-** Do not try to evaluate landscapes here, because sunlight flattens them out eliminating most shadows. Line and texture are obscured.

**Sidelighting-** This is the best situation for landscape evaluation, because shadows thus created give the landscape depth. This lighting delineates line and texture.

### E. Atmospheric Conditions

-haze restricts the range of each visual zone.

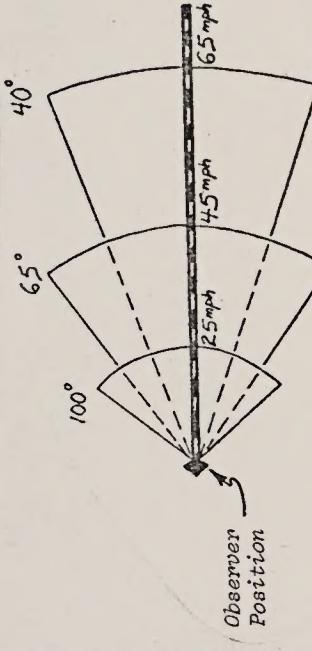
**F. Seasons** -e.g. snow cover strengthens form and line dominance.

### G. Motion

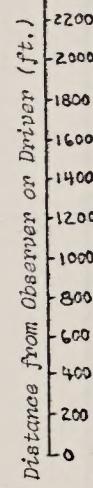
-attracts and holds the observer's attention; e.g. cascading water.

### H. Time

-visual exposure increases with the amount of time that a landscape may be viewed. Conversely, visibility of roadside landscapes decreases as vehicle speed increases.



As speed increases, the driver's cone of vision decreases, and the point on which he focuses attention recedes. Therefore, an object clearly seen by a motorist traveling at 45 mph may be unnoticed if he increases his speed to 65 mph.





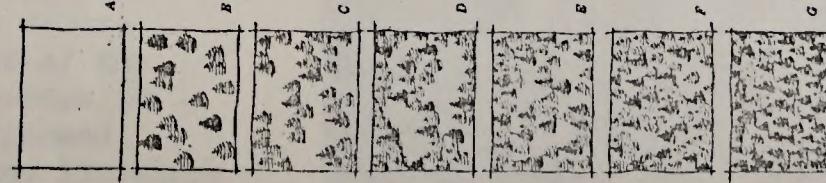
## VISUAL RESOURCE MANAGEMENT (VRM) CONCEPTS

## VARIETY AND HARMONY

### III. Variety and Harmony

deals with the visually acceptable and preferred range in terms of the four visual dominance elements.

Whether or not a view is pleasing and the amount of visual attention given to it relates directly to contrast and harmony. Unless the contrast present in a landscape with a large amount of variety contains inharmonious elements, it will be more pleasing to view, and will attract the eye more, than a monotonous landscape.



Variety in the landscape is desirable. But how much variety is enough? There is no pat answer. There are, however, significant guidelines.

There is a point where variety increases from zero until it becomes visually pleasant or acceptable. But, as additional like-objects are added to the landscape, variety again diminishes; it approaches the point where it is no longer pleasant (it is zero again). In the sketches, A and G (the extremes) tend to be the least interesting. The intermediate stages tend to be the most enjoyable.

Not everyone would rate each sketch the same; however, most would pick the sketches in the middle range as the most interesting but usually would not pick the middle sketch where the proportions are equal. They would normally choose C or E or both where the ratio of one element to the other is roughly 40 to 60 percent. The point is not that we can determine a precise percentage, but that we can approximate the area toward the center of the variety scale at which visual acceptability is reached.

Though this diagram illustrates only vegetative variety, variety of landforms (and water), and man-made structures is desirable as well.

Harmony results from the inclusion of neither too few nor too many parts, ideas, qualities, or materials. This proportioning of the parts is based on the size of the whole.

Garrett Eckbo  
*The Landscape We See*

## — Page 2 of 5

## IV. Deviations

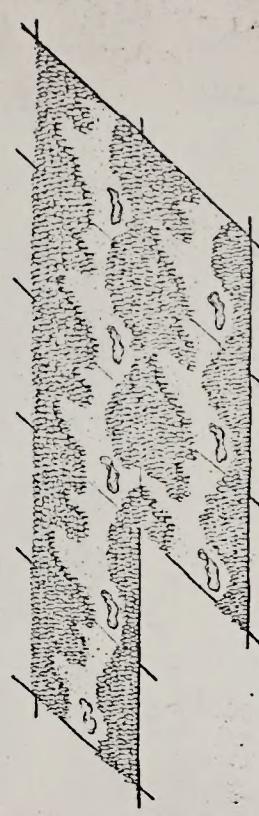
refers to changes in the natural landscape (changes = proposed action)

- A. Are two kinds of changes:  
Plus- these borrow visual dominance elements--form, line, color and texture--from the characteristic landscape (i.e. they complement it). These are changes that result in no adverse impact.  
Minus--these do not borrow dominance elements from the characteristic landscape. These are adverse aesthetic impacts.

- B. The ability of the characteristic landscape to absorb visual modification is directly proportional to:

Landscape variety (in three landscape features):  
1-landform (and water)  
2-vegetation  
3-man-made structures

1. The more variety is introduced into an existing monotonous landscape, the greater the potential becomes for adding inharmonious elements, because more contrast is produced. Conversely, if an existing landscape already possesses a great degree of landscape variety, the introduction of additional features has a lesser potential for adding inharmonious elements, because there is more landscape variety from which to borrow.
2. Harmonious landscapes are not produced by finding a desirable degree of variety for one land area and then repeating it ad infinitum over vastly larger areas or distances.



Harmony results from the inclusion of neither too few nor too many parts, ideas, qualities, or materials. This proportioning of the parts is based on the size of the whole.

Garrett Eckbo  
*The Landscape We See*



The four photographs on this page illustrate the nature of the four visual dominance elements as well as the four visual zones.

This view of the Yampa River south of Steamboat Springs looks west towards background landscapes of the Flat Top Mountains. The overlay points out especially form, line, and texture-dominant features.



Near Ridgeway, this view of the San Juans also illustrates form, line and texture dominance. Note the character of the historic log structure; the strongly texture-dominant chimneys and line-dominant walls help to break up the building's form into elements that more readily borrow from the characteristic landscape.



This landscape, seen looking south from the Roan Plateau, is both line and form-dominant, having trapezoidal forms and diagonal lines. Texture is medium (sagebrush) to coarse (Douglas-fir), changing to fine in the background. Note how atmospheric haze on this particular day has restricted the extent of middleground landscapes.



The La Sal Mountains in Utah occupy the distant background; middleground landscapes obscure the near background. Note the color-dominance of the dead treetops in the foreground, though the landscape is largely form and texture-dominant.



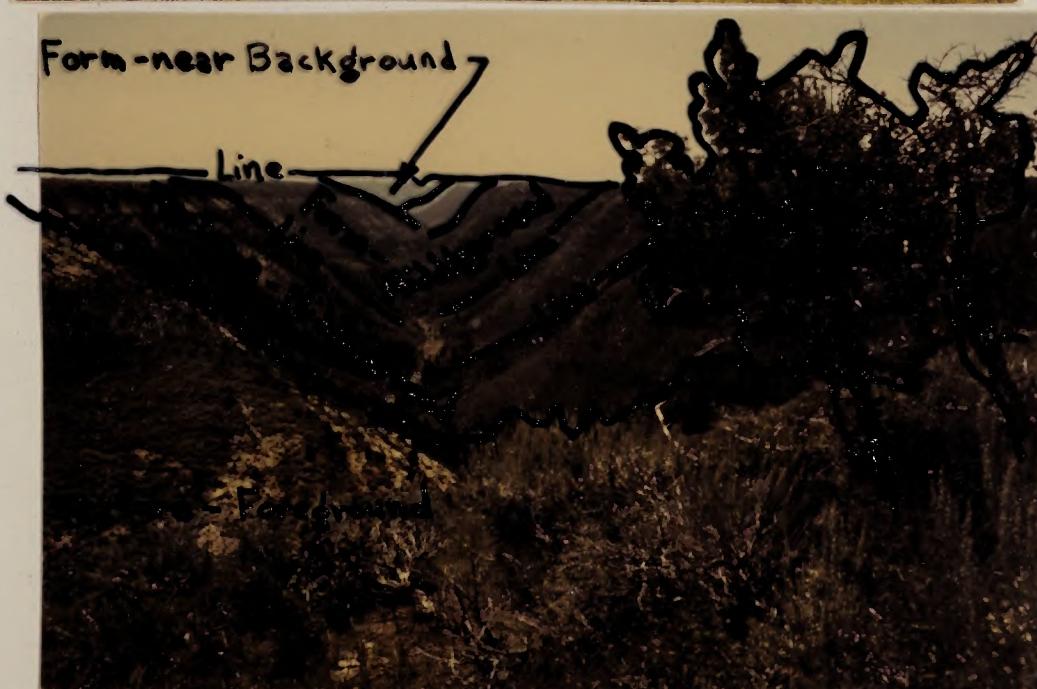
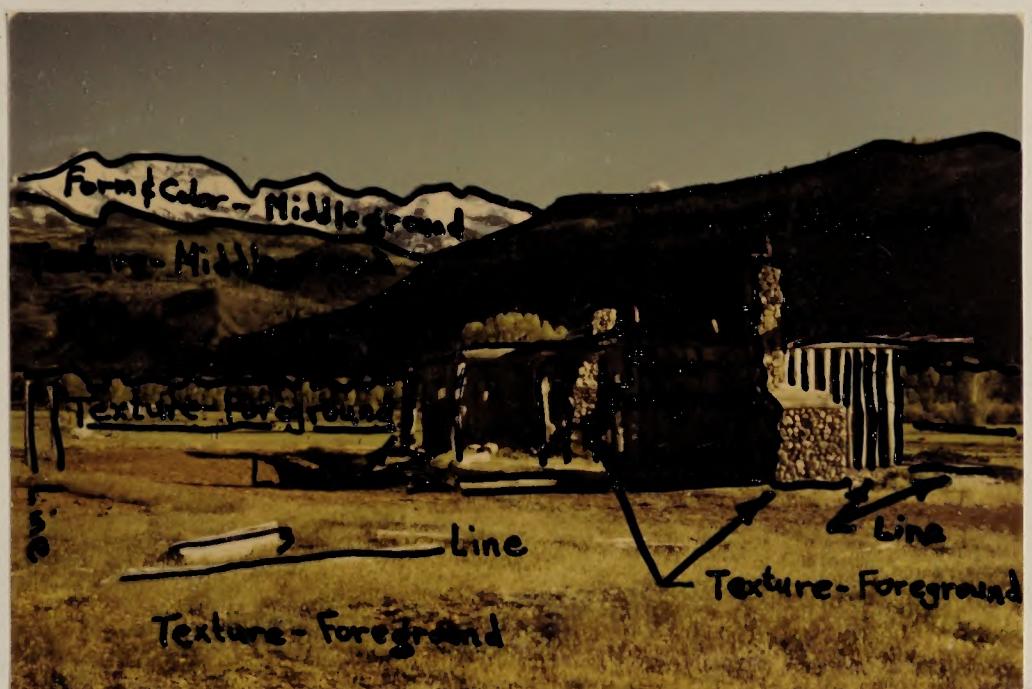


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The La Sal Mountains in Utah occupy the distant background; middleground landscapes obscure the near background. Note the color-dominance of the dead treetops in the foreground, though the landscape is largely form and texture-dominant.





Other than the snow-capped peaks in the background, the most obvious feature in this landscape is the strongly color-dominant dragline. From this viewpoint, note how the new road in the middle-ground borrows line and color from the rimrock ledges directly beyond it.

The top three photos were taken at Energy Fuels Corporation's Energy I mine; similar operations adjacent to I-70 near the mouth of DeBeque Canyon illustrate the beneficial effects of using camouflaging colors.



Strong color and line dominance of the Energy I tipple borrows nothing from the smooth and rolling characteristic landscape in which it lies. Note the line and color-dominant spoils lying just beyond the coal stockpile.



Strong color dominance is exhibited in the maintenance and office buildings, dragline and guard rail. Note the line-dominance created by the reflective transmission line. Note how the axis of the railroad focuses attention on the maintenance area.



Special "Cor ten" steel was used for this guard rail, and the tipple was painted a buff color: both borrow color from the characteristic landscape. Compare the tipple with the orange conveyor just beyond it.





Although the conductors and structures on these transmission lines south of Rio Blanco have been in place for several years, they are yet quite reflective; regardless of how long standard conductors weather, their smooth surface remains an efficient reflector of light.



This page also contains examples of minus deviations--adverse aesthetic impacts. These projects do not borrow visual dominance elements from the characteristic landscape.

Painting this natural gas facility a non-reflective gray brown or olive color would aid tremendously in allowing it to borrow from colon in the surrounding landscape. A small sign or a more restricted use of bright color could still provide for safety if this was a significant consideration for painting the structure silver and red.



Careful planning could have avoided imposing these intensely form and line-dominant swaths upon this gently undulating landscape. This could have been accomplished by minimizing sagebrush blading and by realignment to avoid disturbing the natural integrity of the pinon-juniper groves, in an attempt to repeat the naturally occurring landscape elements.





SCENIC QUALITY EVALUATION CHART      Rocky Mountain physiographic region

FACTORS	OUTSTANDING (A)	CHARACTERISTIC (B)	MINIMAL (C)	Notes - for justification to change from Class B (Characteristic) to either Class A or C
1. LANDFORMS & ROCK OUT-CROPPINGS (relief, scale, color and variety)	<ul style="list-style-type: none"> <li>— peaks &amp; ridges —</li> <li>— mountain slopes —</li> <li>— narrow mountain valleys —</li> <li>— &amp; parks</li> </ul>	<p>Outstanding peaks and ridges include horns, aretes and those rugged landmarks mountain features with high relief sufficient to dominate the surrounding mountain landscape (e.g. Pikes Peak) - great variety essential.</p> <p>Outstanding mountain slopes are steep and rugged with talus-slopes, avalanche chutes, rock promontories and cliffs - great variety essential.</p> <p>Outstanding narrow mountain valleys include cirques and U-shaped glaciated headwaters above terminal moraines, U-shaped valleys of great depth, small mountain parks (holes), and canyons of great depth with high cliffs - great variety essential.</p> <p>Outstanding broad mountain valleys are those flat areas within three to five miles of mountain landscapes that highly contrast with the adjacent rugged mountain landscape. Minimal broad mountain valleys are broad flat to gently rolling intermountain basin floors far removed from mountain landscapes. (e.g. much of Wyoming Basin) - great variety essential.</p> <p>Outstanding foothills are rugged areas with high relief that often are an abrupt contrast to adjoining flat landscapes (e.g. the first 3-5 miles of the foothills of the Front Range adjacent to the high plains - great variety essential.</p>		
	<ul style="list-style-type: none"> <li>— broad mountain valleys and parks —</li> <li>— rolling foothills —</li> </ul>			
			<ul style="list-style-type: none"> <li>1</li> <li>2</li> </ul>	
2. VEGETATION PATTERNS (color & variety)	<ul style="list-style-type: none"> <li>— intermontane sagebrush lands</li> <li>— ponderosa pine</li> <li>— douglas fir forests</li> <li>— lodgepole pine forests —</li> <li>— mountain brushlands —</li> <li>— subalpine fir - englemann spruce —</li> <li>— alpine tundra —</li> <li>— aspen groves —</li> <li>— river bottom cottonwoods —</li> <li>— or riparian willow</li> </ul>	<p>Minimal intermontane sagebrushlands are broad expanses of uniform vegetation cover - lacking variety.</p> <p>Outstanding ponderosa pine - douglas fir forests are stands with mature old growth timber, or intermixed with meadows and aspen groves - wide variety. Minimal lodgepole pine forests are extensive uniform "dog hair" stands - monotonous, lacking variety.</p> <p>Outstanding mountain brushlands are areas broken up into irregular shaped clumps of brush interspersed with grassland - great variety essential. Unbroken monotonous stands lacking variety are minimal.</p> <p>Outstanding subalpine fir - englemann spruce stands are timberline stands, mature old growth timber or intermixed with meadows and aspen - great variety essential. These can be minimal if they occur as a uniform stand - monotonous, lacking variety.</p> <p>Outstanding alpine tundra are areas with intermixed wet and dry meadows and flowers. May be minimal if monotonous - lacking variety.</p> <p>Outstanding aspen groves are intermixed with coniferous stands and meadows - wide variety essential.</p> <p>Outstanding cottonwood river-bottom are riparian groves generally associated with great vegetative variety.</p>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> </ul>	



## SCENIC QUALITY EVALUATION CHART

## Rocky Mountain Physiographic Region

FACTORS	OUTSTANDING (A)	CHARACTERISTIC (B)	MINIMAL (C)	Notes - for justification to change from Class B (Characteristic) to either Class A or C
VEGETATION PATTERNS (cont.)		— grasslands — — pinyon juniper woodlands —		Minimal grasslands are overgrazed areas -- lacking variety. These can be <u>minimal</u> if they occur as a uniform stand -- monotonous, lacking variety.
	4		2	1
3. WATER FEATURES (presence & variety)	dominated by river, lake, large reservoir or a large variety of water features	water present in creek, pond or small reservoir - water only occasionally viewed		Base evaluation of water features on most favorable time of year, usually spring runoff or early summer. <u>Dominant</u> water features are usually cascading whitewater or reflective still water.
	4		2	0
4. LAND USES	<input type="checkbox"/> natural	<input type="checkbox"/> pastoral/cropland	<input type="checkbox"/> mining	<input type="checkbox"/> urban
				Part of landscape type determination and basis for judging factor 5 but is not weighted.

Factors 1-4 determine landscape types



## SCENIC QUALITY EVALUATION CHART

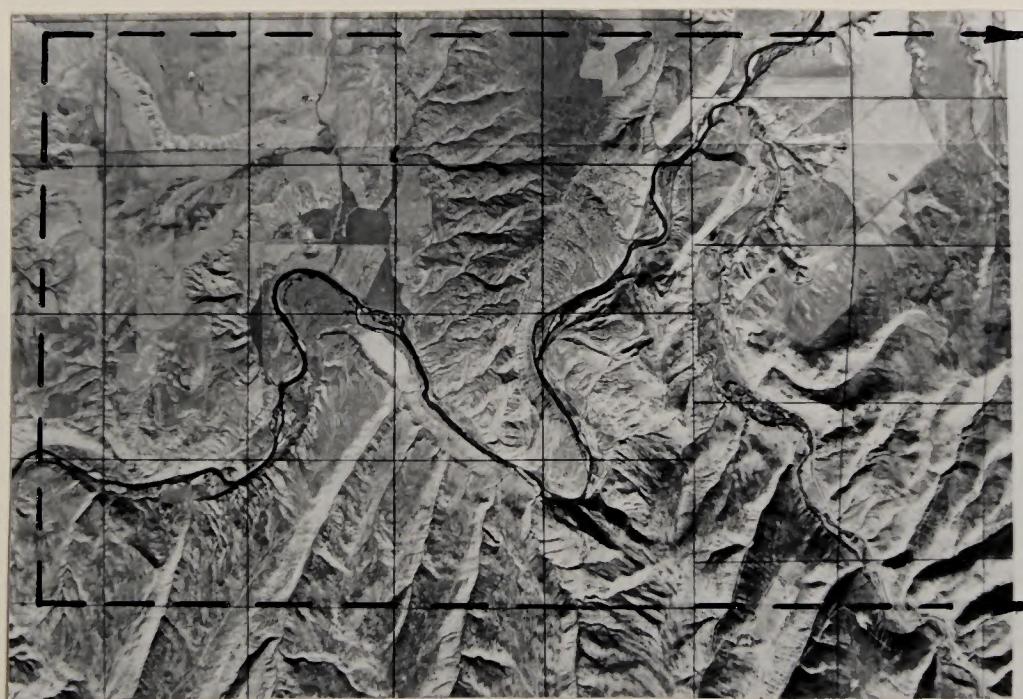
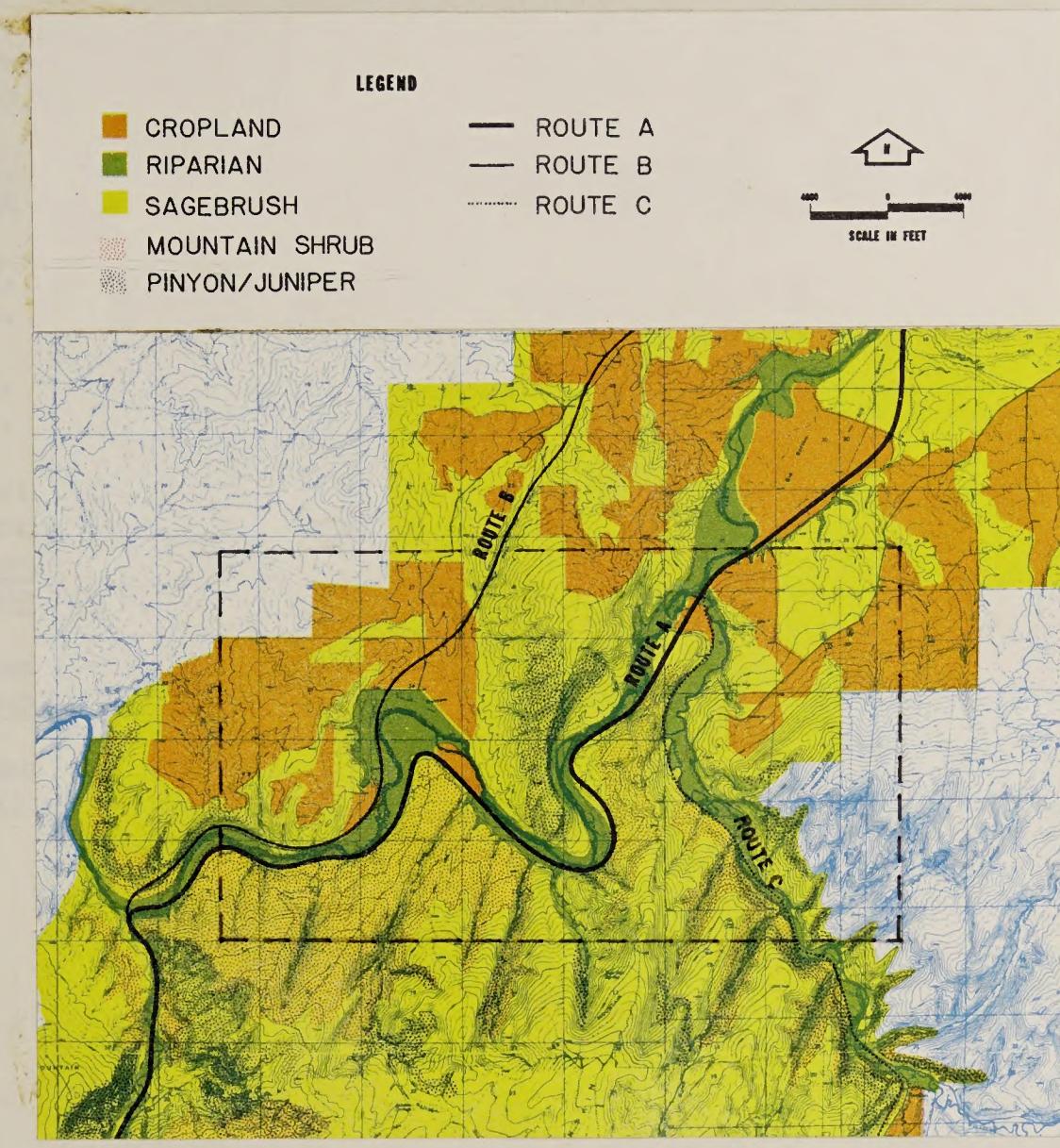
## High Plains Physiographic Region

FACTORS	OUTSTANDING (A)	CHARACTERISTIC (B)	MINIMAL (C)	Notes - for justification to change from Class B (Characteristic) to either Class A or C
1. LANDFORMS & ROCK OUTCROPPINGS (relief, scale, color & variety)	<ul style="list-style-type: none"> <li>— steep to rolling plains —</li> <li>— sand hills —</li> <li>— flood plains —</li> <li>— river terraces —</li> <li>— breaks and badlands —</li> <li>— buttes and mesas —</li> <li>— canyons —</li> </ul>	<ul style="list-style-type: none"> <li>— steep to rolling plains —</li> <li>— sand hills —</li> <li>— flood plains —</li> <li>— river terraces —</li> <li>— breaks and badlands —</li> <li>— buttes and mesas —</li> <li>— canyons —</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>4</li> </ul>	<p>Minimal rolling plains include expansive, flat and monotonous, rather featureless areas - lacking variety.</p> <p>Outstanding breaks and badlands are those that are highly dissected and vividly colored - great variety essential.</p> <p>Outstanding buttes and mesas are very often landmark features in an otherwise subdued landscape - these have much variety.</p> <p>Outstanding canyons are also highly dissected, deep enough to create a sense of spatial enclosure and often varicolored (though not bright) - exhibit much variety.</p>
2. VEGETATION PATTERNS (color & variety)	<ul style="list-style-type: none"> <li>— short grass —</li> <li>— sand sage —</li> <li>— river-bottom cottonwoods —</li> <li>— ponderosa woodland —</li> <li>— pinon/juniper —</li> <li>— brushland —</li> <li>— agricultural lands —</li> </ul>	<ul style="list-style-type: none"> <li>— short grass —</li> <li>— sand sage —</li> <li>— river-bottom cottonwoods —</li> <li>— ponderosa woodland —</li> <li>— pinon/juniper —</li> <li>— brushland —</li> <li>— agricultural lands —</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>4</li> </ul>	<p>Outstanding river-bottom cottonwoods are riparian groves generally associated with a great vegetative variety.</p> <p>Outstanding ponderosa woodland includes mature stands and intermixed meadows and parks - has a wide variety of dominance elements.</p> <p>Minimal pinon/juniper types generally occur in rather gently undulating terrains where vegetative cover is uniform and monotonous, no interspersed shrub species nor parks - lacking variety.</p> <p>Outstanding brushlands are areas broken up into irregular shaped clumps of brush interspersed with grassland.</p> <p>Outstanding agricultural lands include irrigated pastoral landscapes, strip farming, etc. These attract the eye when viewed in an otherwise monotonous landscape - variety is essential.</p>
3. WATER FEATURES (presence & variety)	<ul style="list-style-type: none"> <li>— water present in creek, pond or small reservoir —</li> <li>— water only occasionally viewed.</li> </ul>	<ul style="list-style-type: none"> <li>— absent</li> </ul>	<ul style="list-style-type: none"> <li>1</li> <li>2</li> <li>4</li> </ul>	<p>Base evaluation of water features on most favorable time of year, usually spring runoff or early summer. Dominant water features are usually cascading whitewater or reflective still water.</p>
4. LAND USES	<input type="checkbox"/> natural <input type="checkbox"/> pastoral/cropland <input type="checkbox"/> mining <input type="checkbox"/> urban		<ul style="list-style-type: none"> <li>0</li> <li>2</li> <li>4</li> </ul>	Part of landscape type determination and basis for judging factor 5 but is not weighted.

Factors 1-4 determine landscape types



Vegetative Type Map and Aerial Photo





Bibliography and Reference Material

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Relationship to Bureau Planning System

<u>VRM Inventory and Evaluation</u>	<u>Bureau Planning System</u>
Scenery Quality Inventory ----- (Present Condition and Trends) (6310.11)*	URA Step 3 (1605.47) Existing Situation
Scenery Quality Opportunities ----- (Rehabilitation, Enhancement and Protection)	URA Step 4 (1605.47) Opportunities for Development
Visual Zone Delineation ----- (6310.11)**	PAA - Analysis (1607.3) <i>URA Inventory</i> <i>work</i> <i>manuscript</i> <i>guidelines</i>
Visual Sensitivity Level ----- (6310.2)* **	PAA (1607.3)
Determining Tentative Visual Resource Management Classes (6310)*	MFP Step 1 (1608.38) Activity Objectives and Recommendations ----- Policy and PAA Review
Final Visual Resource Manage- ment Classes	MFP Step 2 (1608.4) Multiple-use Analysis
Visual Contrast Rating, and ----- Reducing Visual Contrast (6320)***	MFP Step 3 (1608.5) Decision Process
Visual Resource Project ----- Planning and Design (6330)	Activity Plans

- \* These sections have been revised from the 6310 manual; manualized provisions should be forthcoming in a special Colorado Supplement.
- \*\* Until procedures for integrating this data with the planning system are manualized, include these two steps as part of URA Step 3. *5*
- \*\*\* A second application of these two steps is required in environmental reporting procedures (i.e. EISs and EARs).
- \*\*\*\* Until further guidance is forthcoming, these two sections of VRM will be displayed in URA Step III. Provisions within the PAA allowing for display of this information in an available and usable format are presently vague.



**BASE MAP**  
**(turn out)**

